



## Healthscapes of self-quantification.

### Quantifying, knowing and improving one's self: transforming health

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#### Abstract

Self-quantification practices are often described as knowledge-making, as the maxim of quantifiers - "self-knowledge through numbers" - makes clear. In this narrative, data is knowledge, knowledge is power, and knowing oneself is central to endeavours to improve health. This article complicates this story, investigating other health-related practices of self-quantification. Moving beyond "knowledge" to attend to the various "doings" embedded in the activities of quantifiers permits a framing of self-quantification not so much as an epistemological quest but rather as a series of practical interventions. This shift to understand self-quantifying as a diverse set of doings rather than simply knowing, provides an opportunity in the remainder of this article to reassess the way quantifiers transform contemporary "healthscapes"; that is the material-semiotic constellations of health. In my conclusion, I argue that self-quantifying practices can be read as a trend of changes in health that is twofold: on the one hand, there is a chronicization of risks, and, on the other, a vision of health as enhancement. These can be plotted along the axes of the normal and the pathological, offering a potentially different reading of the quantifiers' modes of intervening in the self.

#### Keywords

Self-quantification, healthscapes, knowing in practice, chronicization of risk, health as enhancement.

## **Paysages conceptuels de la santé à travers la quantification de soi. Quantifier, se connaître et s'améliorer : transformer la santé**

### **Résumé**

Les pratiques de *quantification de soi* (self-quantification) sont souvent décrites à l'aune de la connaissance qu'elles produisent, comme l'indique la devise des *self-quantifiers* : la « connaissance de soi par les nombres ». Ces descriptions reposent sur l'idée que les chiffres apportent un savoir, et savoir c'est pouvoir : plus l'on se connaît, mieux l'on se porte. Le présent article complique ce récit en enquêtant sur les pratiques de quantification de soi liées à la santé. En s'intéressant aux diverses activités des *quantifiers* plutôt qu'à la connaissance produite, la quantification de soi n'apparaît plus tant comme une quête de savoir que comme une série d'interventions pratiques. Comprendre la quantification de soi comme une série de pratiques plutôt qu'un savoir permet, au fil de cet article, de tracer la manière dont les *quantifiers* transforment les « paysages conceptuels de la santé », ou « healthscapes » contemporains, c'est-à-dire les assemblages matériel-sémiotiques de la santé. En conclusion, je montre que les pratiques de quantification de soi pointent vers une double évolution au sein de la « santé » : d'une part, vers une chronicisation du risque, et, d'autre part, vers l'affirmation du concept de santé comme amélioration. Replacer ces changements sur l'axe du normal et du pathologique permet ainsi d'offrir une lecture alternative des modes d'interventions des *quantifiers* sur le soi.

### **Mots-clés**

Quantification de soi, healthscapes, savoir en pratique, chronicisation du risque, santé comme amélioration.

## **Paisajes de la salud a través de la auto-cuantificación. Cuantificarse, conocerse y mejorarse a uno mismo: la transformación de la salud**

### **Resumen**

Las prácticas de auto-cuantificación son a menudo descritas como producción de conocimiento, como deja en claro la máxima de los cuantificadores – “auto-conocimiento a través de los números”-. En esta narrativa, los datos son conocimiento, el conocimiento es poder, y conocerse a sí mismo es central para iniciativas para mejorar la salud. Este artículo complejiza esta historia, investigando otras prácticas de auto-cuantificación relacionadas con la salud. Yendo más allá del “conocimiento” para atender a los diversos “haceres” embebidos en las actividades de los cuantificadores permite un encuadre de la auto-cuantificación no tanto como una búsqueda epistemológica sino como una serie de intervenciones prácticas. Este cambio en la comprensión de la auto-cuantificación como un conjunto diverso de “haceres” en lugar de simplemente “saberes”, proporciona una oportunidad para reevaluar la forma en que los cuantificadores transforman paisajes conceptuales de salud (“healthscapes”) contemporáneos; esto es las constelaciones materiales-semióticas de la salud. En la conclusión, se argumenta que las prácticas de auto-cuantificación pueden leerse como una tendencia de cambio en materia de salud que tiene un doble objetivo: por un lado, hay una cronicización de los riesgos, y, por el otro, una visión de la salud como de mejoramiento. Estos se pueden trazar a lo largo de los ejes de lo normal y lo patológico, ofreciendo una lectura diferente de los modos de los cuantificadores de intervenir sobre el yo.

### **Palabras clave**

Auto-cuantificación, paisajes de la salud, conocimiento en la práctica, cronicización del riesgo, salud como mejoramiento.

## 1. Introduction

This paper elaborates on my research on practices and narratives of self-quantification. I start by briefly introducing self-quantification and the virtual ethnography that was the foundation of this research. I then unpack the way the practices of self-quantification articulate knowledge. The way of knowing, that is central to self-quantification in my fieldwork, then serves as a basis to map the conceptual transformations of health (what I call "healthscapes", following Clarke, 2010) that emerged from attending to self-quantification.

Self-quantification is a term used to refer to a set of technological devices and practices of gathering, analyzing, and sharing all sorts of personal quantitative data. This includes biological data, measurements of productivity at work, sexual performance, localization, money management, mood fluctuations, diet and much more. Since my interest here has to do with conceptual changes in health, I focus mainly on data relating to health. For the purpose of this article, this refers to anything that has to do with well-being, which is one of the main areas of focus for self-quantifiers.

But how to attend to these practices? As the literature shows, there are many ways to study individuals within the digital health ecosystem, especially in relation to technological devices and to numbers (Andrieu, 2012; Heyes, 2007; Espeland & Stevens 2008; Gibbon & Novas, 2008; Henderson & Petersen, 2002; Lupton, 2012; Mol, 2000; Rose, 2001). In my research for this article I decided to look for empirical cases to ground my investigation in what may be called a virtual ethnography focusing on the blog, the *Quantified Self*.

Much has been written on what virtual ethnographies might entail for ethnographers, for their objects, and for ethnographic methods (Postill & Pink, 2012; Kozinets, 2010; Hine, 2000). Here I intend this term as an engagement with an online community, whose practices rely heavily on the web but also – significantly – take place beyond it. In this sense, I approach the narratives of people engaged in self-quantification through the stories they told and shared on the *Quantified Self* blog, paying attention to the messy back-and-forth between discursive practices and practices of quantification. Following Hine's work, I take this as "an opportunity for making a form of ethnographic enquiry suited to the Internet" which "involves embracing ethnography as a textual practice and as a lived craft, and destabilizes the ethnographic reliance on sustained presence in a found field site" (Hine, 2000, p. 43).

Such an approach allows me to unpack the way that practices encompass different healthscapes, without dismissing the accounts the quantifiers themselves employ, nor merely reporting their stories.

### 1.1 THE *QUANTIFIED SELF* COMMUNITY

The people whose practices I am interested in gather around a blog, called *Quantified Self*. To situate the blog, and the community it animates, let me first recount one of the genealogies of these practices and how this coagulated into a "movement". While it is of course always possible to propagate genealogies, this one is close to what can be considered the "official" mythology of quantifiers, the "origin story" that quantifiers often tell themselves.

The blog *Quantified Self* arose in the first decade of the 2000s from the shared interest of two individuals devoted to the emergence of new kinds of technological tools and gadgets, Kevin Kelly and Gary Wolf. Kevin Kelly is one of the founding editors of *Wired* Magazine, and Gary Wolf is one of its first staff writers (and was, at the time, Contributing Editor). Because of their interest in the ways technological advancements were shaping health, as well as their journalistic work in *Wired*, they decided to map, document, and gather together information on the novel practices of self quantification (for an ethnographic inquiry of this genealogy see Butterfield, 2012). To do so, they focused on what was emerging at the intersection of the growing availability of GPS, personal genomics and cloud computing and the production of new sensors and forms of data storage, at a time when ever more powerful smartphones were finding their way into the private sphere.

The first experimental meeting, called "*meetup*" was launched in the Bay Area in 2008.<sup>1</sup> These meetings progressively adopted a *Show & Tell* format, in which people gathered to talk about their experience of self-quantification. To do so, they had to answer three questions: "What did you do? How did you do it? What did you learn?". The blog was created that year to bring together videos of these talks and to provide a space to share information and experiences. This generated a lot of interest, coagulating in a "movement", called the Quantified Self (QS) movement, which quickly spread across the United States and Europe. *Quantified Self* is the blog

<sup>1</sup> A location that is more than coincidental, considering that at that time it was the fast-recovering site for a renewed boom of Silicon Valley finance after the dot-com bubble, and was already the site of the Maker Faire, a similar event built around 'the Do-It-Yourself (DIY) mindset'.

at the center of my virtual ethnography, and the narratives of quantifiers – a jargon term for those in the movement conducting self-quantification – provides the basis for the reflections I present here.<sup>2</sup>

To begin to understand the QS movement, it is important to keep in mind that the mantra of self-quantifiers is to promote “Self-knowledge through numbers”. The way to obtain these numbers is by attending to the body, by measuring and quantifying it. In self-quantification, then, the body becomes – through the use of (more or less high tech) tools – an instrument of knowledge production. In this sense, the term quantifier comes to indicate the assemblage of observer, observing device, and the object of observation.

## 2. Knowing oneself through numbers

Through a variety of measuring devices, repetitive practices, and visualizing tools and graphs, people engaging in self-quantification aim at producing knowledge that rates as scientific knowledge. These practices bring to the fore tensions between a universalizing knowledge relying on the grammar of biomedicine and a personalized application of biomedicine as a knowledge that is valid at the individual level only. In this section, I address this tension before turning to the practices involved in such a knowledge quest.

### 2.1. STRIVING FOR A SCIENCE OF THE INDIVIDUAL

As mentioned above, quantifiers put a lot of emphasis on *knowledge* in their practices. Essentially, self-quantification is about collecting data based on one's own physical parameters.

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<sup>2</sup> Something needs, of course, to be elucidated here: the group that I have followed through the blog is constituted, by and large, by those who are most dedicated to self-quantification. Many of them are already scientists, engineers or otherwise involved in science and technology. Those who join the meetings to give talks are usually the ones that push these experiments to the extreme. In this sense, there is no intention of providing a “representative sample population” of sort, here. Instead, this account starts from the most typical cases, almost mythological cases of self-quantification.

To move from data collection to knowledge, quantifiers appropriate methods (and the epistemological apparatus) from the domain of science.

Indeed, experiences of self-quantification are often framed as scientific experiments on the self. Such experiments often begin with a hypothesis. In one such case, Thomas Christiansen wanted to identify the cause of the massive increase in his sneezes during the summer of 2013. He formed several hypotheses, tested them, and concluded that the trend was linked to his diet (Christiansen, 2014). In another case, meeting former NASA scientist Ray Cronise, who supported the idea that exercising in a cold environment increases calorie burning prompted Nick Alexander to test if this would work for him too (Alexander, 2014). Once the hypothesis is formulated, self-trackers design their experiment. They identify the features they will test, the testing instrument, and then try to conduct the testing in the manner that is most reproducible. In this sense, self-quantifiers strive to frame their life in the *stable syntax* of the lab (cf. Law, 2002). Hence, many of these experiments are aimed at providing evidence and producing knowledge that, at the very least, strives to be worthy of consideration as *scientific*.<sup>3</sup>

Quantifiers aim to produce a kind of knowledge that qualifies as scientific. In this sense, the apparatus for producing this knowledge is calibrated to quantify and measure in the same ways that would occur in a lab. Despite their efforts to produce scientific knowledge, however, the kind of knowledge quantifiers deal with is significantly different to scientific knowledge. In fact, the cumulative and irrefutably factual nature of knowledge is counterbalanced by the fact that the investigator and the investigated, the patient and the doctor, are one and the same. The “object” of scientific experiment is there, flesh and blood, to give her testimony. Despite this significant difference when compared to institutionalized biomedical knowledge, the objectivity of scientific distance seems, somewhat paradoxically, strengthened, by the subjectivity of the experience of the witness, in a style reminiscent of Pentecostal and Charismatic cults. In this sense, data personalization may be read as another technique to legitimize the knowledge that quantifiers produce.

To illustrate this, I present the case of David Duncan, perhaps we would even call it a *testimony*, which clearly represents this personalization of knowing. Deeply involved in self-quantification, Duncan has indeed dedicated his life to a better understanding of his own self and body. He runs a specific project to achieve this, and has published a book called *Experimental Man* (2009), which he describes in his own words: “This book, *Experimental Man*, is about

<sup>3</sup> The lab is not the only repertoire that is mobilized in quantifiers’ accounts. Other such repertoires involve the investigation (the example of Larry Smarr, which I will introduce later, is a case in point here), and the clinical case. On the similarities and differences between these repertoires, see Eco and Sebeok (1988).

scientists and other very cool people I am hanging out with. And they have run about 250 tests on me: genes, environment, brain, body. And basically, the book and my talk tonight, *if you want, it is this organism these guys studied, speaking back*" (Duncan, 2009, my emphasis).

In Duncan's case, as in many others, what matters is the very personal nature of his speech which seems to contradict, runs parallel to, but maybe even come to reinforce the alleged universality of the truth claims usually made by quantifiers. These speeches showcase personal experiences and are often very intimate stories of disease or hardships. Before and during the talks, more often than not, quantifiers insist on the singularity and uniqueness of what they are talking about, and on the non-transferability of their methods and conclusions. It works "for me", "for my body", "for my organism". This seems to parade a *science of the individual*, an increasingly common ideal of a more *personalized* medicine. However, this paradoxical merging of universalizing scientific discourses and the idiosyncrasies of personal experience calls into question the biomedical ideal of universal truth.<sup>4</sup>

## 2.2. KNOWING IN PRACTICE

If we stick to the accounts that quantifiers themselves offer, then knowledge is likely to appear as the essential element that they seek through quantification. Furthermore, this knowledge is seemingly put on a par with scientific knowledge. As I have shown, much of the quantifiers' efforts are directed towards legitimizing their knowledge in two domains; both as scientifically accurate and as personally meaningful and true. However, as we learned from the social study of science (Pickering, 1992), this understanding of science as knowledge production doesn't account for a number of things that go on in the making of science. The same happens, I argue, in self-quantification. In fact, even if knowledge is promoted as the ultimate goal of self-quantification, there are many other things at stake in quantification practices.

Let us return to the questions that form the structure of most talks on the QS blog: "What did you do? How did you do it? What did you learn?" The answers to these questions often highlight the procedural aspect of quantifying practices. The kind of activities that are foregrounded are quantifying, measuring, isolating variables, purifying objects and getting rid of

<sup>4</sup> A questioning that does not necessarily contradict mainstream positions in the life sciences. In fact, complexities are increasingly displacing the idea of an overarching universal truth. But this question is beyond the scope of this article.

interferences; the activities that foreground legitimate scientific knowledge. Just as in the case of science, however, other kinds of “doings” are taking place in self-quantification.

Indeed, when we step back from considering *knowledge as a product* of these interventions, to attend instead to the *processes of knowing*, the knowledge displayed by the quantifiers emerges as something extremely practical and experimental. Let us consider, for instance, some of the answers to the question “What did you learn?”. Very often the reply materializes some intuition, some implicit knowledge such as: “That confirmed that if I drink coffee after 4 p.m., my sleep is affected,” or “I now have proof that closing the curtains allows me to sleep one additional hour”. Or again, “I already knew that I put on weight when I was on holidays; however, thanks to the experimentation, I could *see it* even more concretely, with figures”. In a sense, it is clear that the quantifiers frame their results in terms of knowledge, or, at least, as a way to visualize knowledge. However, when paying closer attention to the kind of practices and doings that are unveiled by these responses, knowledge no longer seems a central element, after all. Self-quantification practices are not only about discovering something about oneself, then, but also about enhancing one’s health, and adopting new habits.

The quantifiers’ stories are stories about not drinking coffee after 4 p.m., about closing the curtains before going to sleep, about controlling one’s eating while on holiday. Considering the *practices* that are involved in self-quantification provides an opportunity to move beyond the epistemological discourse of science. Doing so allows many other key elements to consider in self-quantification to surface.

Following Jeanette Pols (2014), here I argue that three different kinds of doings that are crucial to quantifiers’ practices. First, quantifiers are *translating* different biomedical, scientific, numerical data into daily life habits. Counting how many times one sneezes every day, and linking it to dietary habits involves a lot of tinkering. Similarly, the decision not to drink coffee after 4 p.m. involves a number of translations.

At the same time, quantifiers also *coordinate* diverse repertoires of knowledge, technologies, and advice from various communities. Vivienne Ming gives us such a case in point (Ming, 2014). Ming is a neuroscientist whose son has had type 1 diabetes for 2 years. With her partner, also a scientist, she decided to gather as much data as possible on her son’s diet, his insulin and on any type of physical exercise or stress. Her son is also equipped with a continuous glucose monitor. The parents were able to modulate the treatment in an extensive and detailed manner. What is particularly interesting is that they did so *against* the advice of their son’s doctors. Indeed, the doctor argued that this profusion of information was unnecessary and time-consuming. In Ming’s experience, doctors did not want to deal with the enormous quantity

of material brought into the consultation room and instead preferred her to limit the data she brought to consultations to include only the most conventionally used data. In a way, while producing very detailed and fine-tuned expert knowledge was helpful for the family, it was difficult to coordinate it with the kind of knowledge that is produced and used by medical professionals. In other cases, however, the coordination works differently. It is not uncommon that self-quantifiers produce data that can then be used by biomedicine. In the case of diabetes, data collected by patients outside of the hospital in daily life is extremely valuable to doctors and strikingly different to data gathered in hospital (where diet control is very strict, and physical exercise or other mundane stressors are avoided). If this offers an interesting way to relate to biomedicine, it is important to point out that what is produced is not really a knowledge made *by* the individual, but rather knowledge gathered *on* the patient.

Together with translating and coordinating, another kind of doing that takes place in self-quantification has to do with *practical interventions*. Changing one's diet over the holidays to affect weight gain, or to reduce sneezing, giving up coffee after 4 p.m. and closing the curtains before sleeping are all practical interventions in mundane, but crucial, daily activities. This is, of course, not limited to self-quantification *stricto sensu*. Yet, with quantification practices an intervention can be more readily implemented, especially in the interstices between institutional biomedical settings and more personal, mundane activities.

As a case in point, I want to offer a personal example. As a diabetic patient in a hospital in France, I met a group of patients who had decided to create a new format for our logbook (which is the notebook that patients are supposed to fill in with their glycemic values). Indeed, the logbooks provided by the hospital were extremely small, without space for patients to put any other "event" that could have impacted the glycemic values. To obviate this problem, they created a PDF template and gave it to the nurses and doctors, who ended up adopting it and suggesting it to some hospitalized patients.<sup>5</sup>

This example helps realize that attending to knowledge in practice might undo the hierarchies that see conceptual knowledge as more important than practical knowledge, and rethink possible relations between the two while neither sacralizing nor reifying the activities of quantifiers. In fact, starting from a practical standpoint allows us to resituate knowledge. It also provides a way to go beyond the opposition, which Pols already overcame, between the

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<sup>5</sup> This case is also interesting in that it recasts what self-quantification is. While the QS community is one specific community that is often very attached to technological gadgets, but that is often "healthy", the case of diabetic patients anticipates the similarities and differences between *patients* and *quantifiers* that I draw in the next section of the article.

romanticized “patient experience”, which is not considered “real” knowledge, and “expert knowledge,” which belongs to medical professionals.

### 3. Self-quantification and healthscapes

Notwithstanding the focus on “self-knowledge through numbers”, I have shown that self-quantification is not exclusively about knowledge. Instead, it is also, and most importantly, about specific practices and interventions. When considering self-quantification practices based on health-related data, as I do in this article, these interventions are shown to be improving one’s health, through small, mundane activities. In this sense, then, self-quantifying practices could potentially contribute to shifting what health can be, to transforming what Clarke calls “healthscapes”.

“In healthscapes, health and medicine are viewed as far more than particular institutions in their conventional sociological framings, separable from others such as family, religion, economy, polity, media. Instead healthscapes attempt to capture all of these together, however inadequately, in their material, semiotic, and symbolic dimensions” (Clarke, 2010, p. 105). In this section, I map some of the transformations in healthscapes that may be brought to the fore through a close examination of self-quantification.

#### 3.1. TRACKING THE NORMAL: HEALTH UNDER SCRUTINY

Quantifying, then, is not merely knowledge making. Instead, it involves a number of other practices, interventions and *doings* (in the sense offered by Abrahamsson et al., 2014). These activities, in turn, transform the context and practices of health that characterize different healthscapes. One of the most evident transformations brought about by self-quantification practices has to do with the visualization of the body (or of different bodies that can then be made into one – or not, cf. Mol, 2002). Tracking and quantifying many aspects of one’s biology (blood pressure, cardiac rhythm, weight, and so on) contributes to making the functioning of the body visible. However, having these kinds of data on display is usually required when something is

wrong, in a hospital setting for instance. Evidently, this is not the case in self-quantifying. The activities of quantifiers spread the medical beyond institutions the realm of the pathological. In this way, the possibility of risk, or the potential for disease, is always present.

Practices of quantification create a sort of *chronicization of health risks*. Behind the constant scrutiny of one's parameters lies the implicit and constant possibility of discovering a condition, maybe an infra or pre-symptomatic disease. The case Larry Smarr (2011), who self-diagnosed an unexpected disease is one example. This is an extreme case, since it is uncommon that healthy quantifiers successfully self-diagnose diseases, but it is one that is known and often cited in the community gathering on the QS blog. In this sense, it contributes to the imagined identity of the community and plays an important role in their own "mythology". Smarr started to quantify himself in order to lose weight. He began to track and produce a vast array of data; running blood test, consulting many different online doctor's forums and even sending his stool samples for analyses by an online company. As he puts it himself:

In many ways, my personal journey is a detective story. It started with simple quantification, such as weighing myself every day; but then clues began emerging which caused me to dig deeper and to rapidly expand the biochemical variables I was tracking over time. Eventually, I made a completely unexpected discovery about myself, with serious future health ramifications. (Smarr, 2011)

At the end of his quantification he diagnosed a chronic colon infection and later found out he had an increased risk of developing Crohn's disease. This case illuminates the medicalization of the everyday and the pathologization of the normal through the omnipresence of risk. In this sense, the effect of self-quantification on healthscapes is similar to the rise of surveillance in biomedicine. This also contributes to the reshuffling of the polarity of normal versus pathological under the spectrum of an individual who is always at risk, that we could call a "patient-in-the-waiting". This notion was developed by Timmermans and Buchbinder (2010), in relation to the "genomic era" of biomedicine, to describe the increased liminality of the individual within the healthcare system at a time of surveillance medicine, which connects to this constant possibility of disease (Adams, 2013; Armstrong, 1995).

Of course, this scenario is not the only one that matters: there are numerous and significant other aspects that would push a reflection on risk and chronicization in different directions. Just one example of a possible alternative analysis would focus on the intimate weaving of health insurance companies and institutional medicine, and the ways categorizations

of health risks can take different shapes than the daily chronicization made evident in the case of Larry Smarr. This aspect, interestingly, also applies to the development of biomedicine, surveillance and (genetic) forecasting and risk assessment. While I will not attempt to conflate these two very different phenomena, I do wish to draw attention to their similarities as well as to the parallel transformation of healthscapes towards a pathologization of the ordinary through the notion of risk, and the possibility for constant surveillance and (self) quantification.

### 3.2. HEALTH AS ENHANCEMENT

The constant presence of risk comes with an equally constant *possibility of*, and *quest for*, improvement. For me, his shift started to become evident, to my surprise at the truly heterogeneous panels of people giving talks, and the diversity of what they decided to quantify: Parkinson, sneezing, diabetes, running, cardiac diseases, snoring, sleeping, ageing. In a way, the distinction between people with diseases and healthy people became somehow irrelevant in this context. Sick or not, what was at stake was to become *better*. Being healthy, in the practices of quantifiers, is not so much a question of establishing or returning to a normal state but of *enhancing* one's present state; from a steady state of risk of sub-optimal health to a (dynamic) process of improvement. This became particularly visible in the quantifiers' talks around the idea of "active ageing", in which the speakers and quantifiers discuss counteracting the deteriorative process of ageing through self-quantification.<sup>6</sup> In this context, any individual, whether sick or not, whether already a patient or not, can use self-quantification practices and devices to *manage* their biological parameters and tinker with them in order to remain healthy, or even to enhance their health.

Furthermore, such enhancement is achieved through a number of mundane practices. Closing the curtains before sleeping might allow you one extra hour of sleep, the effects of which cascade to improve your overall health, for example. Personal surveillance and quantification, then, can be mobilized for a willful practice of enhancement. These transformations in healthscapes can be articulated as shifts in the normal versus pathological axes. What is normal and what is pathological, then, is not clearly demarcated. At the same time, what is good is not necessarily identified with the normal, but is hyper-healthy, a status that is not normal but rather requires constant effort and measurement to keep goals on track. In the changing paradigm of

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<sup>6</sup> See, in particular, the presentation titled "Fit 50s, Sound 60s" (Benet, 2014).

health that emerges from the practices of self-quantifiers, then, there is always room for improvement.

Both these shifts, the constant possibility of risk and of improvement, seem to connect, in the case of self-quantifiers at least, to a proliferation of *specificities*. The increasing availability and possibility of measurements allows a tide of “data” to enter the healthscapes and the health practices of quantifiers. Furthermore, these specificities, although rarely sanctioned by biomedical institutions, are characterized by an accuracy and rigor that make them, at least in the eyes of quantifiers, commensurable to official biomedical data.

Within this context of growing complexities and specificities outside the walls of the lab and the hospital, we are able to picture the transformations mapped here as a move from a *biomedical* self to a *biological* self. Rather than having just a pathology that needs curing and healing in specific moments and through determined institutions, the self has a biology, with its complex ecological entanglements, and with its idiosyncrasies and unique features, that can only be mapped through constant monitoring. When quantifiers measure their variables on a daily basis, they are not like doctors or patients, they are more like ecologists monitoring the ecosystem. When looking for trends in their number of sneezes, or in their sleeping patterns, they do not seek normality, but rather look for correlations and connections that make sense to them, and that can be tinkered with in their own practices. Thus, the changing healthscape of self-quantifiers is one in which the normal and the pathological are displaced and unsettled by a growing number of specificities and data, from which health emerges as a monitoring practice or as a set of practices of tinkering, adjusting, and enhancing.

## 4. Conclusions

In this paper, I discussed self-quantification through an engagement with the *Quantified Self* blog. By attending to the presentations of quantifiers, I first attended to their own foregrounding of knowledge. In the first part of the article, I consider the way in which quantifiers struggle to produce knowledge that qualifies as scientific. At the same time, I unfold the way in which their quest for legitimacy does not shy away from a personalization and subjectification of the same knowledge that they try to objectify; as becomes clear through the style of their presentations.

Taking from the social study of sciences, however, I have also shown how considering self-quantification as knowledge production only limits our analysis. Instead, the practices of quantifiers, especially data measurement related to health, involves a number of diverse practices and doings. These have to do with translating different kinds of knowledge, coordinating different systems, groups, logics, and finally, with making practical interventions.

These interventions, in turn, transform what health can be and effectively change healthscapes by transforming both practices and understandings of health. In the second part of the paper, then, I have attempted to map some of these changes. What the analysis of the health-related practices of self-quantifiers showed is that two different shifts have occurred in healthscapes. The first has to do with the constant presence of risk, and the spreading of the pathological over to the mundane. The second transformation is related to the first: it concerns the proliferation of avenues through which to improve and enhance health

Both these transformations have to do with shifts along the axis of the normal versus the pathological: pathology is always a possibility, while normality is not the desired ideal. Instead, health is always open to personalized improvement through close measurement, monitoring and tinkering. These shifts are connected to an increased availability of data that has introduced specificities and complexities in the quantifiers' healthscapes.

As I have concluded, in the second part of this article, the transformations that I have mapped can be articulated in terms of a move from a biomedical self to a biological self: from a self that has a pathology to one that has a biology. While this change seems self-evident from the practices of self-quantifiers, it is important to keep in mind that these are not mainstream health practices. Rather, they are a small part of broader changes in the healthscapes that we experience today.

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