

## Personal data practices in the age of lively data

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The lives of humans have become increasingly entangled with digital technologies due to the reactive and responsive nature of computer software and the ubiquity of the devices that people carry with them or that sense their activities as they move around in public spaces. Humans have become digital data subjects. In this world of “smart objects” and “smart environments,” such as smart clothes, smart cars, smart cities, smart homes, smart schools and smart appliances, digital devices can begin to make decisions for us and generate information about us that we may not access to, and that may be used by third parties: insurance companies, energy companies, educational institutions, workplaces, media corporations, marketers, government agencies, and the like. A digital data knowledge economy has developed, in which digital data have acquired great value, viewed as configuring new forms of knowledge for commercial, managerial, educational, government, and research use.

In this chapter, I discuss the ways in which people engage with the data that are generated from their interactions with online technologies and digital sensing and communication devices. I adopt a sociomaterial approach in discussing personal data practices that acknowledges the entanglements of humans with technologies. From this perspective, both humans and the technologies with which they interact are viewed as agential actors, each influencing the other. The modes of creating and manipulating people’s data are invested in such features of software as browsers, search engines, apps, and algorithms. The manner in which people interact with this software is mediated via the opportunities that are offered to them in using devices

1 such as desktop and laptop computers and mobile and wearable devices (or  
2 what are often referred to as the “affordances” of these technologies). These  
3 affordances are the outcomes of human decision-making. The people who  
4 generate the data and then use it in various ways are also making decisions  
5 about their actions within these frameworks. These intersections of humans  
6 and non-humans form changing networks of actors (Marres, 2012; Rogers,  
7 2013; Gillespie et al, 2014).

8 “Digital data assemblages” are the products of these human-technological  
9 encounters. They are configurations of discourse, practices, data, human  
10 users, and technologies. Digital data assemblages are ephemeral and motile,  
11 constantly changing as users’ new encounters with digital technologies occur  
12 and as different data sets come together and interact and are taken up for a  
13 range of purposes by various actors and agencies. Each digital data assemblage  
14 represents a unique and specific moment in time – a form of “frozen data” –  
15 that then goes on to change again.

16 The term “big data” is now often used to describe the massive digital data  
17 sets that are generated ceaselessly from online interactions and digital devices.  
18 The generation and use of digital data involve a range of data practices on the  
19 part of individuals and organizations. Personal data practices include collecting  
20 information about oneself using self-tracking devices, contributing content  
21 on social media sites, and observing other people’s interactions on these sites.  
22 Such practices are voluntary and consensual. Other personal data practices,  
23 however, involve information being collected on behalf of people by other  
24 actors. These practices include the surveillance and harvesting of people’s  
25 device use, online searches and transactions by policing and security agencies,  
26 the internet empires and the data mining industry, and the development of  
27 tools and software to produce, analyse, represent, and store big data sets.  
28 While a distinction is often made between “small” data (personalized, detailed  
29 information about individuals) and “big” data (massive digital data sets), the  
30 boundaries between both are blurred. As most small data that are produced  
31 from people’s interactions with digital devices and software are transmitted  
32 to cloud computing data archives, they tend to be aggregated with others’  
33 small data to become big data.

34 The term “data practices” describes the ways in which people collect,  
35 make sense of, and engage with digital data assemblages, including the types  
36 of “data materializations” that are generated. Data materializations are ways  
37 of representing digital data so that they may be viewed or even touched and  
38 handled: from lists of numbers, words, or terms to graphs, drawings, and other  
39 two-dimensional visualizations to 3D printed objects that are fabricated from  
40 digital data sets.

## Critical digital data studies

Given the current prevalence of digital data surveillance and monitoring of people by both voluntary and involuntary activities, digital data practices and digital data assemblages have become phenomena for critical social and cultural investigations. Writing from the perspective of human-computer interaction studies, Mortier et al (2014) have suggested that a new field of research should be developed: human-data interaction. Instead of focusing on how people interact with their devices or software, human-data interaction examines the interpretations that people give to the data that these technologies generate. As outlined by Mortier et al, human-data interaction research should include researching the different forms of interaction that people may have, including their granting of access to their personal data by other actors and agencies, the ways in which people understand data, such as information about how their data are accessed by others, the inferences that may be drawn from personal data or large aggregated data sets, and the consequences of actions in making data available to others, the feedback mechanisms by which data can influence future actions or decisions, and the different actors that interact when data are generated and used.

These are all important questions. However, there are further, broader-reaching issues that also require attention. At a more critical and social level of inquiry, a body of literature in the humanities and social sciences has begun to emerge in response to digital data (see, for example, boyd and Crawford, 2012; Lyon and Bauman, 2013; Andrejevic, 2014; Kitchin, 2014; van Dijck, 2014; Boellstorff and Maurer, 2015; Clough et al, 2015; Lupton, 2016a). This research focuses on such elements as how digital data are generated and how they circulate and are purposed and repurposed, and the sociocultural and political aspects of the data practices of publics and professionals who work with digital data. From this perspective, digital data is a phenomenon that involves power relations, including struggles over ownership of or access to data sets, the meanings and interpretations that should be attributed to big data, the ways in which digital surveillance is conducted, and the exacerbation of socioeconomic disadvantage by the inferences and assumptions that are generated by big data algorithms. Digital data are viewed as highly relative, located in time, space and specific social and cultural contexts. They can only ever tell a certain narrative, and as such they offer a limited perspective. There are many other ways of telling stories using different forms of knowledges. Digital data are also partial: only some phenomena are singled out and recorded and labeled as “data,” while others are ignored (see Lupton, 2015a).

Digital data may be characterized as “lively” in a number of ways (Lupton, 2016a). First, these data are about life itself. Second, they are dynamic, with their own social lives. They are constantly being configured and reconfigured as people interact with online technologies, and are circulated and repurposed by a multitude of different actors and agencies. Third, these data are a key part

1 of the global knowledge economy, contributing to commercial, managerial,  
2 government, and research enterprises (“livelihoods”). And finally, these data  
3 have become an influential part of everyday lives, affecting beliefs and behaviors  
4 and increasingly, people’s life chances via the assumptions and inferences that  
5 are developed from algorithmic analytics. Indeed, in extending the metaphor  
6 of lively data, I have drawn on the work of Haraway (2003) to argue that the  
7 digital data assemblage may be conceptualized as a companion species to the  
8 humans with which it co-evolves (Lupton, 2016b). Haraway uses the term  
9 “companion species” to describe the relationships that the human species  
10 has not only with other animal species, but also with technologies. The  
11 companion species trope recognizes the inevitability of our relationship with  
12 our digital data assemblages and the importance of learning to live together  
13 and to learn from each other. It suggests both the vitality of these assemblages  
14 and also the possibility of developing a productive relationship, recognizing  
15 our mutual dependency.



16 The vitality of digital data has significant implications for people’s data  
17 practices. People are confronted with attempting to gain some purchase on  
18 information about themselves which is not only continually generated, but is  
19 also used by other actors and agencies in ways of which they may not be fully  
20 aware. They are also dealing with the ways in which their data are announced  
21 to themselves, such as the push notifications, “nudges” for taking action, and  
22 targeted advertising that they receive when using apps and online platforms.  
23 The commodification, motility, dynamism, and “pushiness” of digital data  
24 are aspects that are particularly characteristic of the contemporary digital data  
25 economy compared with earlier forms of collecting and using knowledges  
26 about people.

27 The ways in which digital data can be used for monitoring and surveillance  
28 of users are also important elements that have been addressed by some writers.  
29 The use of big data sets in surveillance activities, or what is referred to as  
30 “dataveillance” (van Dijck, 2014), has become a controversial topic. Since  
31 mid-2013 a number of highly publicized scandals concerning the monitoring  
32 of people’s personal digital data have received public attention. Whistle-  
33 blower Edward Snowden’s revelations about national security agencies’ digital  
34 surveillance of their citizens, the Facebook and OKCupid experiments on  
35 their members, and the hacking of nude celebrity photos on iCloud and adult  
36 dating sites, for example, have publicized the ways in which people’s personal  
37 (and sometimes very intimate) data may be accessed and used, often without  
38 their knowledge or consent. As the monitoring of individuals’ bodies, energy  
39 use, work productivity, moods, social relationships, purchasing habits, driving  
40 practices, and so on becomes more routinized and widespread, options for  
41 avoiding becoming the subject of dataveillance are limited.

42 It is important to acknowledge that many forms of dataveillance are  
43 self-imposed or consensual, engaged in as part of everyday interactions with  
other users on social media sites, for example, or as part of personal efforts

1 to achieve self-knowledge or self-optimization by self-tracking using digital  
2 devices. Mobile digital technologies such as the camera and audio-recording  
3 functions in smartphones and wearable self-tracking devices that are able  
4 to easily collect information about people's body functions, habits, and  
5 behaviors, and the social media platforms that facilitate the uploading and  
6 sharing of images and details about oneself and others have contributed to  
7 the practices of what has been referred to as "social surveillance" (Marwick,  
8 2012), "participatory surveillance" (Albrechtslund and Lauritsen, 2013), or  
9 "reflexive self-monitoring" (Lupton, 2016a). These forms of watching involve  
10 the practices of sharing information about oneself with others, inviting  
11 their reactions and comments, often as part of friendships or in developing  
12 other social relationships, as well as commenting on other people or sharing  
13 information one has gathered about them (including images and audio data).  
14 They are very different forms of dataveillance from the imposed, covert, or  
15 disciplinary modes that are represented by CCTV cameras, police-worn body  
16 cameras, or the secret surveillance of online interactions by national security  
17 agencies. Nonetheless, the personal information that is generated from these  
18 modes are still part of the flows and circulations of the wider digital data  
19 economy, and as such, are subjected to potential repurposing by other actors  
20 and agencies.

21 Critical digital data scholars have begun to draw attention to the possible  
22 ways in which digital data sets may be used to make assumptions and inferences  
23 about individuals or social groups. Some commentators have discussed the  
24 commercialization of digital data and critiqued the ways in which people's  
25 personal data may be used for the financial benefit of others (Andrejevic, 2013,  
26 2014; Center for Media Justice, 2013; Crawford, 2014; Lupton, 2014b, 2016a;  
27 Andrejevic and Burdon, 2015). The implications for social justice and civil  
28 rights have also been identified. Predictive algorithms that draw on personal  
29 digital data are now used in many social and economic domains to construct  
30 scores that are used to determine whether individuals should be provided with  
31 access to special offers, goods, and services, or whether they pose risks such  
32 as the possibility of engaging in criminal acts or terrorism.

33 Concerns have been consequently raised by privacy and ethics  
34 organizations and legal scholars about invasions of personal privacy incurred  
35 by big data practices (Polonetsky and Tene, 2013; World Privacy Forum, 2013;  
36 Crawford and Schultz, 2014; Executive Office of the President, 2014; Nuffield  
37 Council on Bioethics, 2015). For example, the predictions that are made by  
38 big data analytics can result in predictive privacy harms, in which people may  
39 be discriminated against simply because they are categorized within certain  
40 social groups based on their data. This can affect people's access to healthcare,  
41 credit, insurance, social security, educational institutions, and employment  
42 options, and render them vulnerable to unfair targeting by policing and security  
43 agencies (Crawford and Schultz, 2014; Rosenblat et al, 2014).

1 People may experience technical difficulties in gathering digital data,  
2 visualizing it or seeing ways of making data work for them, or they may be  
3 denied access to their own data. The affordances of the digital technologies  
4 structure the norms and expectations against which people are expected to  
5 measure their behaviors and biometrics, and limit the type of information that  
6 they collect, emphasizing some while ignoring others (Nafus, 2013; Lupton,  
7 2014a, 2015b, 2016a). People are given access to only some of the digital data  
8 that they generate, with the vast majority unavailable to them because they  
9 are in the possession of internet companies (Nafus, 2013; Andrejevic, 2014).

10 In these sociomaterial conditions, how are personal digital data assemblages  
11 conceptualized? What choices do people make around collecting, interpreting,  
12 and sharing their data? How do people give meaning to their data, and how are  
13 data incorporated into everyday lives, notions of selfhood, and embodiment?  
14 I address some aspects of these questions in the remainder of this chapter. As  
15 well as referring to others' research, I draw on some of the findings from my  
16 own current projects to illustrate some points.<sup>1</sup> I have grouped the discussion  
17 under three themes: data valences; data communities; and data ambivalences  
18 and suspicions.

## 20 **Data valences**

21  
22 As research by Fiore-Gartland and Neff (2015) found, different social groups  
23 give different meanings to digital data. They focused on health- and medical-  
24 related data in their research, using interviews, observations, and participation  
25 in the communities of technology designers, medical practitioners, advocates,  
26 and patients. Their research found that members of these different groups  
27 conceptualized the same digital data sets very differently, influenced by the  
28 particular social relationships and expectations within these contexts. The data  
29 are interpreted and used differently as a result: they possess different value and,  
30 in effect, become different data. Fiore-Gartland and Neff use the term "data  
31 valences" to encapsulate these shifting and contextual forms and uses of data.  
32 Healthcare workers, for example, tend to represent health and medical data in  
33 terms of actionable information for managing patients and their conditions,  
34 while self-trackers who collect data on themselves represent this information  
35 as narratives about the self.

36 Research on people who use digital devices for self-tracking aspects of  
37 their lives has demonstrated the emotional responses that such data practices  
38 may involve as part of the meaning and value that people give to their personal  
39 data. Ruckenstein and Pantzar's research (Ruckenstein, 2014; Pantzar and  
40 Ruckenstein, 2015) with Finns using a digital heart rate monitor found that  
41 their participants gained a great deal of pleasure from noticing how their  
42 physical activities contributed to a "good" data reading. These researchers  
43 also found that certain quotidian activities, including housework, gained new

1 value for the participants because of their input into improved physical activity  
2 metrics as measured by the devices. Their participants enjoyed reviewing  
3 the visualizations of their personal data. When their attention was drawn to  
4 certain parts of their bodies (such as their heart, as represented by heart rate  
5 data), they began to focus more on these parts than others. The digital data  
6 that were generated from these sensors therefore came to change the ways in  
7 which these people thought about their bodies and their everyday activities.  
8 The metrics that these data generated were invested with personal significance,  
9 because they were about their own bodies. The data visualizations were  
10 viewed as more credible and accurate by the participants than the “subjective”  
11 assessments of their bodily sensations. A new kind of value was therefore given  
12 to some everyday activities and interactions and to the parts of their bodies  
13 on which these devices gathered data.

14 People who engage in reflexive self-monitoring of their bodily functions  
15 and activities often make reference to these devices’ ability to see inside the  
16 body, uncovering “hidden” dimensions that they would otherwise be unable  
17 to perceive through their senses (Lupton, 2016a). This discourse suggests that  
18 humans require the assistance of machines to extend their capabilities and  
19 provide accuracy and enhanced interpretation and memory of information.  
20 This was evident in participants’ accounts of using fitness tracking devices and  
21 software in my project with Glen Fuller. For example, one male cyclist who  
22 used self-tracking devices to monitor his rides noted the following:

23 Well, like, you’ve got all these perceptions about how hard you’re  
24 riding. What I’ve found is that those perceptions don’t necessarily  
25 match up with what your heart rate is doing. You think they do,  
26 that’s the thing. Before you have something like this, you think, ‘Oh  
27 yeah, I can work out how hard I’m riding. I don’t need something  
28 like that to tell me.’ But the reality is actually quite different. So  
29 in a way, that’s really sort of work out how to ride a bit better and  
30 harder and know when I can push myself more and that sort of  
31 thing, and when I might be a bit tired and struggling and those  
32 sorts of things, which you don’t pick up on too much.

34 This man’s words underline the ways in which digital data on people’s bodies  
35 and behaviors are often conceptualized as more truthful than the perceptions  
36 that they receive from their senses. He observes that his self-tracked data can  
37 “tell” him how hard he is riding, how high his heart rate is, and how tired  
38 his is, while his bodily sensations may be misleading. He is willing to trust  
39 the numbers, which appear to offer greater accuracy.

40 My project addressing the use of digital media by pregnant women and  
41 the mothers of young children found that the use of digital media to provide  
42 information during pregnancy and in the early years of parenting was very  
43 common. For example, in the survey I conducted of women who were



1 either pregnant or who had given birth in the past three years (Lupton and  
2 Pedersen, 2015), 73 percent of the respondents said that they had used at least  
3 one pregnancy app, with the majority of these respondents using between  
4 two and four apps, and using them daily or several times a week. Almost all of  
5 the women who used these apps said that they found them useful or helpful.  
6 The apps were used mostly for seeking information about fetal development  
7 and changes in their bodies related to pregnancy.

8 My public understandings of big data study with Mike Michael (Lupton  
9 and Michael, 2015; Michael and Lupton, 2015) also revealed a willingness  
10 on the part of the participants to exploit the possibilities of digital devices to  
11 engage in reflexive self-monitoring or the monitoring of others. For example,  
12 one of the tasks we set the focus group participants involved asking them in  
13 pairs to design data-gathering devices: one that they could use to collect any  
14 kind of data about themselves, and one for collecting data on another person  
15 (we called these “personal data machines”). Their designs demonstrated the  
16 participants’ realization of the potential of digital devices to participate in  
17 ever-more intimate forms of monitoring of oneself or others that may allow  
18 others to gain greater insights into the participants’ lives. One pair designed  
19 a dream-recording app that would allow them to remember their dreams  
20 the next day. They went on to describe how this could be linked to a dating  
21 app, so that prospective couples could share each other’s dreams and perhaps  
22 work out how compatible they were. Another pair discussed a data machine  
23 that could monitor the social interactions of people’s partners, so that the  
24 user could determine if too great a level of attention was being paid by their  
25 (possibly cheating) partners to other people. Devices that were able to closely  
26 monitor users’ bodily functions were a popular choice, such as one that  
27 involved analysing the user’s sweat to determine whether they were eating a  
28 nutritious diet. Devices for keeping a watchful digital eye on one’s children  
29 were also frequently suggested, including features that could let parents know  
30 the location of their children, record their biometrics, and check that they  
31 were doing their homework.

32 My research on digitized pregnancy and parenting also revealed the desire  
33 of people to generate detailed information about themselves or intimate  
34 others. Several women were positive about using a device that tracked their  
35 infant’s body metrics. The members of one focus group talked about how  
36 they would like to use such a wearable device for their infant that would  
37 convey data to their smartphone. They also suggested that they would like to  
38 use a self-tracking app during their pregnancy that would track their fetus’s  
39 development, and send this information to their partner or parents so that  
40 they could also see how the fetus was developing. The participants in this  
41 research wanted digital devices such as apps and websites to be customized  
42 and tailored to their personal details: the stage of gestation they had reached  
43 in pregnancy, for example, or the age of their children or where they lived.



## Data communities

Many apps and social media platforms encourage people to engage in sharing practices of their personal information as part of their engagement with these technologies. The notion that people can become closer, learn from, and even motivate and support each other by exchanging personal details is reproduced in a range of apps and platforms, from Facebook to specialized patient support platforms such as PatientsLikeMe to fitness self-tracking apps such as Strava and RunKeeper. Users are encouraged to reveal intimate details of their lives to other users as part of developing social bonds, networks, and communities. In this discourse of sharing, personal data are represented as contributing to collective knowledge stores (Lupton, 2016a).

Research has demonstrated that the pleasure of sharing personal data are inherent to the motivations of people who use social media sites such as Facebook, Instagram, and YouTube to upload photographs or videos of themselves or status updates discussing details of their lives (van Dijck, 2013; del Casino and Brooks, 2014). People who engage in self-tracking also frequently allude to the value that they gain from sharing their information with others and feeling part of a community of people engaged in similar pursuits (Barta and Neff, 2015; Lupton, 2016a). The interviewees in our fitness self-tracking study discussed the satisfaction they received from comparing the metrics from rides or runs and noting improvements, and competing with or receiving support and encouragement from other users. Several commented that they also enjoyed uploading information about their sporting pursuits to social media platforms such as Facebook, recounting the number of kilometers of their rides or runs, the time taken, or providing photographic images from the route for their friends or followers to admire. Their use of their personal data, therefore, was often performative, representing their accomplishments and exploits to others. The numbers that their devices generated allowed them to monitor, record, and display their accomplishments easily and in ways that allowed for ready comparisons.

Women who are pregnant or in the early years of motherhood are frequent users of online sites that facilitate the sharing of personal information. It has become common for pregnant women or mothers of young children to upload details of the development of the fetus or child on social media platforms or support websites, and to share ultrasound images or images of the child following their birth (Ammari et al, 2015). This personal data practice was discussed by some of the participants in my project on digitized pregnancy and parenting, as was the use of support forums on pregnancy or parenting apps, or websites or Facebook groups as a means of discussing their experiences of pregnancy and parenting. For these women, and those quoted in other research on women's use of such digital media (for a review of these studies, see Doty and Dworkin, 2014), practices of sharing information about their pregnancy, parenting experiences, and children are valuable means of



1 representing themselves as “good mothers,” feeling part of a community,  
2 dealing with feelings of isolation, and sourcing information from others in  
3 the same situation. The women in my focus groups, for example, discussed  
4 how they had gained answers to questions or concerns they had about their  
5 pregnancy or their children by asking questions on online forums or social  
6 media platforms or viewing other users’ interactions. Sharing information in  
7 these contexts becomes a communal data practice, in which people’s personal  
8 details become part of a crowdsourced body of knowledge that is available  
9 to other users of the sites.

## 12 **Data ambivalences and suspicions**

13  
14 Several recent studies have suggested that the highly publicized controversies  
15 concerning dataveillance and data breaches have begun to influence people’s  
16 attitudes to the ways in which digital data are routinely collected on them  
17 and used by second and third parties. Two Pew reports outlining the findings  
18 of surveys about Americans’ attitudes to data privacy (Pew Research Center,  
19 2014; Madden and Rainie, 2015) found that the respondents were aware  
20 of many aspects related to how their privacy was being challenged, and of  
21 data security breaches, including national security agencies’ dataveillance of  
22 citizens and how their personal information is used by commercial companies.  
23 The first report (Pew Research Center, 2014) found that nearly all of the  
24 respondents were aware of Snowden’s documents and what they revealed about  
25 the surveillance of citizens. They felt that their privacy was under threat by  
26 such surveillance and that conducted by commercial internet organizations.  
27 Nearly all of the respondents agreed that people had lost control over how  
28 their personal information is collected and used by companies. The second  
29 Pew report (Madden and Rainie, 2015) noted a significant element of personal  
30 data insecurity that had begun to affect people’s attitudes towards dataveillance  
31 and data privacy. Very few respondents felt they had much control over the  
32 types of data that are collected on them and how these data are used. They  
33 expressed strong views about the importance of preserving personal data  
34 privacy and security, but had little confidence that internet companies or  
35 government agencies would achieve this. Few people in either survey said  
36 that they had taken steps to avoid dataveillance, however, suggesting a lack of  
37 knowledge on their part about how to do this.



38 Australian (Andrejevic, 2014) and British research (Kennedy et al, 2015) has  
39 also found that people express powerlessness in the face of the authority of  
40 the internet empires to collect, own, and harvest their personal information.  
41 This sense of powerlessness is exacerbated by socioeconomic disadvantage.  
42 Another study used participant observation and participatory action research  
43 with Americans from socially marginalized and disadvantaged backgrounds  
(Gangadharan, 2015). It revealed that such individuals frequently only have

1 access to “privacy-poor, surveillance-rich” public broadband. For most of  
2 them, privacy of their personal data was viewed as a luxury rather than a right,  
3 because they had few options to protect their data and lacked the digital literacy  
4 skills to know how to do so. They expressed little concern about commercial  
5 or national security dataveillance of the type revealed by Snowden’s document,  
6 but a high level of worry about government dataveillance. Such people often  
7 have a history of experiencing surveillance from government agencies, mostly  
8 stemming from their interactions with social welfare systems. Particularly  
9 when they are applying to or maintaining their eligibility in welfare programs  
10 online, they are forced to relinquish intimate details. They are therefore at  
11 risk of further marginalization, exclusion, and exploitation from the effects  
12 of dataveillance when they are using this type of internet access.

13 My own Australian research on public understandings of big data identified  
14 a somewhat diffuse but quite extensive understanding on the part of the  
15 participants of the ways in which data may be gathered about them and the  
16 uses to which these data may be put. We found that the participants in our  
17 focus groups tended to veer between recognizing the value of both personal  
18 data and the big aggregated data sets that their own data may be part of,  
19 particularly for their own convenience, and expressing concern or suspicion  
20 about how these data may be used by others. It was evident that although  
21 many participants were aware of these issues, they were rather uncertain about  
22 the specific details of how their personal data became part of big data sets,  
23 and for what this information was used. For example, for a female participant,  
24 the knowledge that “some people out there know as much about you as you  
25 know about yourself” was “scary.” She observed that “there is a lot going  
26 on that we don’t know” in terms of how other actors are accessing people’s  
27 personal data. However, a male participant noted that it “depends on who’s  
28 got the data.” Providing the example of a person with severe depression, he  
29 commented that if others knew this information, then they might be able to  
30 provide emotional support or useful services. On the other hand, there are  
31 actors or agencies that might use this information to discriminate against a  
32 person with depression, such as potential employers.

33 Despite such suspicions, a remarkable degree of trust is also often evidenced  
34 in people’s use of digital technologies that collect their personal information.  
35 My research on how women use digital technologies for pregnancy and  
36 parenting found that despite the very high use of pregnancy apps, very  
37 few users had sought to check where the app developers had obtained the  
38 information that they presented in the app. Nor were the women who had  
39 used pregnancy apps concerned about how their personal information may  
40 have been used by the developers of the apps. The focus group discussions  
41 that were conducted as part of this project revealed a similar lack of interest  
42 or knowledge among the participants in the ways in which their personal  
43 information were being used by second or third parties. Very few of these  
44 women were beginning to think seriously about the implications of creating

1 an online presence for their children by posting images or comments about  
2 them on social media sites.

## 3 4 5 **Discussion**

6  
7 Critical research into data practices, some of which I have reviewed here, has  
8 begun to suggest certain elements of the ways in which people are engaging  
9 with and interpreting their lively digital data assemblages. These include  
10 ideas about the importance of personal data for acquiring new or more  
11 detailed knowledge about oneself, the ways in which the data generated by  
12 digital devices focus attention on some aspects of the body and the self to the  
13 exclusion of others, and the emotional dimensions of digital data practices.  
14 People appear to enjoy the perceived benefits of entering personal details  
15 about themselves or intimate others to customize and personalize apps and  
16 other software to respond to their activities, social relationships and bodily  
17 functions, and using technologies that are able to monitor their own lives or  
18 others' lives in great detail.

19 The affordances of digital technologies for generating, storing, and  
20 manipulating personal data are valued. The quantification that many digital  
21 data assemblages adopt and promote is often considered a more neutral and  
22 accurate form of information. People often enjoy finding meaning in their  
23 personal data and applying their insights to their lives, or being the target of  
24 personalized push notifications that deliver useful information to them. They  
25 also see benefits in being able to share their personal data with others and in  
26 being able to access other people's data. These responses suggest a willingness  
27 to position oneself and others as data subjects.

28 On the other hand, resistances or blockages to data subjectification are  
29 also apparent. Seeking to interpret and make use of personal digital data is  
30 experienced as confusing or frustrating for some people. While collecting or  
31 using one's personal data may involve various modes of pleasure, comfort,  
32 satisfaction, playfulness, or performances of selfhood, confronting or  
33 interpreting personal data may also be experienced as disappointing, frustrating,  
34 limiting, or invasive of the user's privacy. Sometimes people feel as if they  
35 lack control over the reams of personal data that are generated about them,  
36 even those that they voluntarily produce in self-tracking efforts or by creating  
37 content for social media platforms. The data may reveal elements about the self  
38 that individuals would rather not know, or remind them of events that they  
39 would rather forget. Data practices may begin to overtake over aspects of life  
40 to the detriment of other experiences and ways of knowing. It may be difficult  
41 to make sense of data or see how various forms of data relate to each other.

42 The data that are available for people's use may be viewed as limited,  
43 inadequate, or as too revealing of private details. As personal digital data  
enter into the digital data economy, the practices of social or participatory

1 surveillance or reflexive self-monitoring may be transformed into opportunities  
 2 for more coercive, covert, or commercial dataveillance on the part of other  
 3 actors and agencies. It is evident that questions of how to negotiate data privacy  
 4 and security issues are beginning to be confronted by people. However, my  
 5 own research and that of others suggest that they still seem mostly unaware  
 6 of exactly what happens to their personal information once it is transmitted  
 7 to cloud archives, or how to go about protecting their data from unwanted  
 8 use or surveillance.

9 While most people appear to be generally accepting of or resigned to  
 10 the use of their personal information by commercial bodies to target them  
 11 for advertising, many still seem blind to the implications of entrusting their  
 12 personal data to the developers of the devices and software that they use,  
 13 including how their data may be used for profile, or for making inferences  
 14 and predictions about them that may affect their life chances. While people  
 15 may be aware of the more invasive or overt forms of dataveillance to which  
 16 they are subjected (such as targeted marketing and advertising or CCTV  
 17 cameras), there is less recognition of the more diffuse, complex, or covert  
 18 technologies for monitoring, accessing, and repurposing their personal data  
 19 by second and third parties.

20 Researching personal data practices is still a nascent field of research,  
 21 particularly from a sociological perspective. Further enquiries into this topic  
 22 could explore such aspects as: What are the differences in data practices that  
 23 emerge between different social groups and institutions? How do other  
 24 contexts shape data meanings and practices (spatial location, culture, history)?  
 25 What are the power relations that support or restrict data practices?

## 26 Note

27 <sup>1</sup> One Sydney-based project, with Mike Michael, investigated public understandings of  
 28 big data. In late 2014 we ran six focus groups (with a total of 48 participants), in which  
 29 the participants were asked to engage in various tasks together, and then to discuss the  
 30 implications emerging from the tasks. The second project, with Glen Fuller, involved a series  
 31 of one-to-one in-depth interviews in 2014–15 with seven people living in Canberra who  
 32 were keen users of fitness tracking software and devices. The third project focused on digital  
 33 technologies used by pregnant women and mothers of young children. It had two parts:  
 34 four focus groups in Sydney (with a total of 36 women) and a survey that was completed  
 35 by a representative sample of 410 women around Australia. Both were conducted in 2015.

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