MAT ◎ *Medicine Anthropology Theory*

Automating Dietary Expertise

The Challenge of Making a Food-Tracking App for Everyone

Giada Danesi and Tanja Schneider

Abstract

Digitally tracking food and eating has become a widespread activity. Scholars in anthropology, sociology and science and technology studies have problematised the personal and social implications of dietary tracking and the metrification of food and eating. Metrification has contributed to the emergence of new types of relevant expertise and new experts of eating and health. This warrants in-depth research to better understand the forming, negotiation, establishment and effects of new expertise.

Drawing on a sociomaterial perspective, this article explores these questions by reflecting on the development of an automated dietary tracking and intervention app. The article focuses on seeking feedback on mock-ups and prototypes of the app from potential users and non-users in 'go-alongs' and interviews, and in focus groups. The analysis revealed that the delegation of dietary expertise to an automated system poses a challenge for many participants. They emphasised what is neglected in the process—including their dietary but also bodily and sociocultural expertise. Our study contributes to an understanding of how dietary tracking and delegating expertise to an automated system appeals to users whose food values align with metrics used in the app but also users who accept to delegate specific forms of care to the technology.

Keywords

Introduction

Living in a digitalised society means that many domains of social life are structured around Information and Communication Technology (ICT). With the use of digital technologies that generate information with and about our bodies and everyday lives, human activities are becoming more and more datafied (Lupton 2018a). Datafication is specifically defined as 'the conversion of qualitative aspects of life into quantified data' (Ruckenstein and Schüll 2017, 262) that enables real-time tracking and predictive analysis (Cukier and Mayer-Schoenberger 2013).

Health-related digital devices and data are increasingly activated when individuals engage with their bodies and themselves, for example, when we attempt to comprehend our eating habits, sleep patterns, or exercise regimes (Lupton 2019; 2018c), and mobilised in the interactions with healthcare professionals, but also with family members, friends, colleagues, and other health-related actors such as health insurers, economic actors, stakeholders and researchers (Petersen 2019; Ajana 2017; Marent and Henwood 2023; Lupton 2018c). For these reasons, digital devices and data are reshaping the ways in which we understand and relate to the environment and to ourselves, and are at the same time shaped by the ways in which the society in which we live seeks to understand the environment and our bodies (Henwood and Marent 2019).

Moreover, the digitalisation and datafication of everyday life reconfigure what counts as expertise in healthcare and beyond. This includes a shift in who the (new) experts are, and what their practices of expertise are, due to the importance given to ICT systems, metrics, and scientific and biomedical standards in healthcare and mundane practices (Hoeyer 2023; Egher 2023; Sharon and Lucivero 2019; van Voorst 2024). These new technologies and the related digital data are part of what it is commonly defined as 'digital health'.

In our article we seek to explore the ongoing transformation in relation to the digital tracking of food and eating, which has become a widespread activity for people living with chronic conditions or those at risk of developing non-communicable diseases (NCDs). At the same time, it has become an activity for citizens in general who wish to lose (or gain) weight, improve wellbeing and, more broadly, monitor or improve their diet and health. Scholars have problematised the personal and social implications of digital tracking and the metrification of food and eating including its impact on everyday eating and living (Kent 2020; Lupton 2018b; Didžiokaitė, Saukko and Greiffenhagen 2018; Sikka 2023). Metrification has also

contributed to the emergence of new types of relevant expertise and new experts in food and health.[1]

This article investigates the digitalisation and datafication of a mundane activity—purchasing foods and drinks in the supermarket and the recording of these purchases through data collected for retailers' loyalty programmes—and how these data are re-used and become meaningful or not for other actors than the food retailers themselves. This article explores these questions by reflecting on the process of developing FoodCoach, an automated dietary tracking and intervention app, in which the authors collaborated as science and technology studies (STS) researchers with a background in the anthropology and sociology of food and eating. The article focuses on seeking user feedback on mundane data sharing, dietary tracking technology, mock-ups and prototypes of the app in 'go-alongs'[2] (Kusenbach 2003) followed by informal or semi-structured interviews and in focus groups as part of the research project.

We first present our theoretical framework inspired by a sociomaterial approach of digital health and data (Marent and Henwood 2023; Lupton 2019) drawing from socioanthropological literature and STS research on digital health and dietary tracking, and on expertise and delegation in those contexts. We will then present our project and the methodology we have used to collect and analyse our data. The findings show how potential users and non-users react to the prospect of making healthy food choices enabled by the FoodCoach app. The analysis of this material revealed that the delegation of dietary expertise to an automated system poses a challenge for many of our participants. Our study contributes to an understanding of how dietary tracking and delegating expertise to an automated system primarily appeals to users whose food values align with the metrics used in the dietary app but also users who accept to delegate specific forms of care to the technology.

Digital health and dietary tracking: an ongoing process of metrification of the body and eating

Digital tracking of food and eating has become a widespread activity to monitor and improve humans' health (Lupton 2018b; Kent 2020). Dietary tracking

---

[1] The digitalisation and datafication of food and eating is taking place also in many food-related areas that do not concern directly health issues such as provisioning, leisure activities, ecological concerns (Lupton and Feldman 2020; Stehrenberger, Danesi and Schneider 2024).

[2] Kusenbach (2003) defines it as an ethnographic tool that is a 'hybrid between participant observation and interviewing' (463). Precisely, 'fieldworkers accompany individual informants on their natural outings, and—through asking questions, listening and observing—actively explore their subjects' stream of experiences and practices as they move through, and interact with, their physical and social environment' (463). We have found it useful when accompanying users and non-users of digital health and food apps during their usual food purchasing in the supermarket.

technologies are primarily based on monitoring the quantity of calories ingested and consumed but can also focus on other aspects such as food quality in terms of nutrients and food categories and, more recently, glucose levels (Didžiokaitė, Saukko and Greiffenhagen 2018; Lupton 2018b; Sikka 2023; Usborne 2021; Weiner and Will 2015).

Like many self-tracking technologies, these apps are at the boundary between consumer and medical technology (Weiner and Will 2018). Some technologies move outside the clinic to patients' homes and become consumer devices. They have been developed for specific medical purposes and then are used in other contexts. For instance, continuous glucose monitoring devices have been developed for persons living with diabetes and are also used by members of the Quantified Self (QS) movement and for personalised nutrition purposes (Nafus 2016; Usborne 2021). And conversely, some technologies developed outside the medical context as consumer market technologies have found uses in medical settings; for instance, dietlog or calorie-counting apps used in consultations with dietitians to empower and help patients to prevent health risks or manage specific health conditions.

The digitalisation and datafication of food and eating have intensified and at the same time benefitted from the process of metrification of eating, in line with the already widespread process of its biomedicalisation (Kent 2020; Lupton 1996; Vogel 2021). Scholars have thus problematised these processes and its implications for everyday eating and living. Metrification has fostered the production of a particular kind of knowledge on food and the body, the development of discourses and practices aimed at scrutinising and disciplining biomedicalised bodies, and the reconfiguration of embodied agency and sense of self (Kent 2020; Lupton 2018b; Hayes-Conroy 2016; Didžiokaitė, Saukko and Greiffenhagen 2018; Vogel 2021). Literature has highlighted that dietary tracking apps support healthier food purchasing and consumption (Flaherty et al. 2018; Sikka 2023; Kent 2020), raise hopes and intriguing promises, and provoke positive and negative emotions (Lupton 2018b; Schüll 2018; Kent 2020).

This development has also contributed to the emergence of new types of relevant expertise and new experts on food and eating, such as nutritionists, diet coaches, computer scientists, members of the QS movement, influencers that provides models, standards, advice, and other tips and tools to calculate what we eat, to set and reach goals. This warrants in-depth research to better understand the reconfigurations of expertise at work in relation to eating and nutrition and consumer technology.

This development and the emergence of these devices need to be understood in the broader context of digital health. As Marent and Henwood (2023) stress it is

important to attempt to develop digital health as 'an analytic notion that provides avenues for understanding the ongoing transformations in health care' (38). Petersen (2019) has emphasised that digital health in general has captured the imagination of public health, marketers, established entrepreneurs, and start-ups through a language of enterprise and innovation based on promises of an imagined (healthy) future. Digital health is promoted as expanding the capabilities and capacities of the body, and the processing of information by individuals themselves and by many other institutional and economic actors. Its potential of creating a more 'efficient' (Pols 2010) health system and economic growth have however overshadowed some of its other social, economic, political and individual implications. On the one hand, these new systems are described as 'facilitating new modes of patient involvement in care practices, and are instrumental in a "participatory turn" in healthcare' (Nielsen and Langstrup 2018, 260). On the other hand, they are also inscribed in much older—and familiar—knowledge-power relations that govern our lives. There is a tension between the reproduction of old hierarchies and fights and the production of novel modes of resistance, responsibility, and accountability (Hoeyer, Bauer and Pickersgill 2019; Sharon and Lucivero 2019).

In mobilising a sociomaterial approach of digital health, Marent and Henwood (2023) shed light on different forms of knowledge, relationships, and control produced through particular manifestations of digital health. They suggest salient areas to consider when negotiating types of care being built in the digital transformation. Social scientists have a role to play in configuring digital health by bringing attention to health in digital society rather than digital health alone. We draw from a sociomaterial approach to pay attention to the human and non-human elements that comprise particular phenomena, and the messy relations between people and things (Marent and Henwood 2023; Lupton 2019). This can be done by engaging with different expertise produced and mobilised in the practices of developing and using a digital technology—including by users and non-users—in order to provide insights into concrete materialisations of digital health and dietary tracking, as well as imagined alternative futures.

Expertise and delegation: two crucial issues in the digitalisation and datafication processes of health, food and eating

Co-existence of multiple forms of expertise

We draw from sociological and anthropological literature on health-related expertise that has argued for a co-existence of multiple forms of knowledge and expertise which are complementary or exclusive; sometimes they simply cohabit, in some contexts and situations they might collaborate, and in others they fight against each other (Grundmann 2017; Akrich and Rabeharisoa 2012; Epstein 1995). We refer to the literature on lay and professional expertise on health and healthcare, that has studied the increasing specialisation of medicine and healthcare which patients and citizens have to navigate in contemporary societies (van Voorst 2024). Health-related expertise is steeped in power relations between different forms of expertise. Research has highlighted conflicts of authority between lay expertise and professional definitions and knowledge, and resulting tensions due to the devaluation of lay people's knowledge in clinical and biomedical settings (Kerr, Cunningham-Burley and Amos 1998; Akrich and Rabeharisoa 2012). Nonetheless, recent developments also show collaborations and re-valuation of lay knowledge in clinical and research settings (Rabeharisoa and Callon 2002; Rabeharisoa 2003; Pols 2014). However, lay and expert knowledge cannot be pitted against each other because lay knowledge is also a form of expertise (Pols 2014) that consists in the 'practical knowledge that patients use to translate medical and technical knowledge into something useful to their daily life with disease' (73–4). As Pols highlights, patients have then to coordinate this with their own knowledge and other patients' advice, considering different, and in particular situations, conflicting, values of good care in which 'taking good care of one's body' (74) is only one.

Health-related expertise is also a relational phenomenon (Boyer 2010) that is constantly being made through and negotiated in sociomaterial practices, in the sense that there is a constitutive entanglement of the social and the material, 'human-data assemblages' (Lupton 2018a) in the enactment of digital health expertise. Hence, when studying human encounters with digital technologies and their data, researchers should consider the embodied and material dimensions of the ways this assemblage is taking shape in everyday life and how people are making sense of it. In this article, we will approach expertise as manifold and dynamic, and recognise that its legitimacy is socially situated (Carr 2010).

Delegation of expertise

Research on care in practice has shed light on the mutual entanglement between care and technology in health practices and beyond (Mol, Moser and Pols 2010). Technology along with knowledge and care practices are fluid, shifting and adaptable. Expertise is redistributed and reconfigured in unexpected ways due to the emergence of new and different sites of and actors involved in healthcare, including new practices of health-related expertise and the delegation of medical expertise to technology. The advent of self-tracking technologies and the data they generate or refer to have facilitated the delegation to individuals and their families of health self-monitoring and self-regulation tasks, including self-disciplining (Mol 2000). Healthcare professionals, engineers, and stakeholders play a crucial role in creating the possibilities for users to operate autonomously and are thus salient actors in the reconfigurations of care practices in the digital age. These shifts do not only affect the work of patients, who are now responsible for self-monitoring and self-regulation of their health, but also the work of healthcare professionals. These professionals train patients and their social environment in using these technologies and data and in some cases, are implicated in the development of the system, including the algorithms, and in many others, not enough (Danesi et al. 2020; van Voorst 2024). Simultaneously, in the case of automated systems the power to act is delegated to technologies, such as closed loop systems, pacemakers or defibrillators (Jansky and Langstrup 2022; Oudshoorn 2020), and thus are also in the hands of the computer and data scientists, and other actors central to the development, implementation and promotion of digital health technologies and data (re-)uses.

The delegation of expertise to technology also means the delegation to emerging and ambiguous position in the healthcare system such as computer scientists who lack of expertise in medicine and to 'med tech facilitators' who lack of expertise in the technical realm of the medical technology they are promoting in healthcare services (van Voorst 2024). They promote apps and algorithms but they don't know how they were made and process data. This might create tensions between representatives of technological startups developing technology that aims at supporting care work and clinical colleagues disapproving medical tech facilitators' work, using tech-optimist discourse to justify their practices—which is not without risk in their collaborations (van Voorst 2024).

Hence, it is relevant to emphasise the trend to develop not only automated but also autonomous technology enabled by artificial intelligence (AI). This development could facilitate the uptake of technology by users and patients because tasks formerly done by the user are now done automatically (de Bellis, Johar and Poletti 2023), including the collection and processing of data. Schüll (2016) has

highlighted a shift from 'Big Brother' technology to 'Little Mother' technology; from technology scrutinising each aspect of human lives to technologies that take decisions and do things for you, that somehow 'take care' of you thanks to the delegation of decision-making to them, or at least of data collection and elaboration of personalised information and advice. It is a form of care rather than a form of surveillance, because instead of observing the user, these are tools which directly and closely engage in an increasingly personalised way.

Digital nudging is a form of intervention to enhance self-care. Autonomous technologies should enable compliance, prevent human errors and might overcome some anxieties and needs in navigating on daily choices in their mundane activities. However, research investigating automated, autonomous and outsourcing technologies and algorithmic decision-making also highlights that users might not wish to entirely delegate meaningful activities and decisions to technology. These technologies might threaten users' agency, generate fears that nonhuman actors have displaced judicious human decision-making, reduce feelings of control, deprive users from meanings, and in the long term reduce cognitive and manual abilities (de Bellis, Johar and Poletti 2023; Mead and Barbosa Neves 2022; Atkinson and Barker 2021). This emerging research reveals insights on the different meanings, possibilities and practices related to delegation of particular decisions and tasks to digital technology and possible failures (Fuentes, Cegrell and Vesterinen 2021; Mead and Barbosa Neves 2022).

Research on the cultural and social significance of food and eating has highlighted the wide heterogeneity of normativities around them in contemporary society (Fischler 1979; Mol 2021; Poulain 2021; Vogel and Mol 2014; Vogel 2018), and the possible deleterious but also unexpected effects this might have on eaters. Some people may find it helpful to delegate choices to an app rather than having to make informed choices, and others may find this too difficult due to 'practice conflicts' (Fuentes, Cegrell and Vesterinen 2021), or what we call in this article 'value conflicts', by relating our findings to a specific literature paying attention to valuing in practice, such as the different values people attach to a specific food or the different logics that shape the good and the bad and at play in practising 'good care' (Mol 2010; Pols 2010; Vogel and Mol 2014). In doing that, we will consider the point of views and visions of the potential users and non-users regarding the prospect of delegating expertise on making healthy food choices to an app.

The FoodCoach project: Developing a dietary monitoring and intervention app

This article draws from the empirical material we have collected as part of a collaborative and interdisciplinary research project, called FoodCoach, in which we, the authors, were actively involved from 2020 until the beginning of 2024. The project develops an automated approach for the analysis of digital receipts of grocery shopping—based on customer loyalty cards of the two leading food retailers in Switzerland—to make this information available to users via a progressive web app. Specifically, this system aims to support people in making healthier food choices by leveraging and algorithmically analysing their digital receipts data. This analysis draws on information from a self-developed food composition database to calculate and display the Nutri-Score[3] of their purchases and to generate tailored dietary recommendations to individual users.

The core team was composed of a Swiss team and a Korean team. The Swiss team was composed of one information scientist, two computer scientists, three social science researchers and ad hoc some master's students in computer sciences. The Korean team was composed of two computer scientists, and ad hoc several student assistants in computer sciences.

The Principal Investigator (PI) of the project is Tanja Schneider. She was invited to join the project and to lead it for her qualifications on the study of food and eating and her interdisciplinary training, including economics, STS and sociology of food. The PI has also chosen to recruit a senior researcher, Giada Danesi, with experience in the field of qualitative studies of eating and digital health to explore users' perspective, and a PhD student interested in developing a project related to digital eating within a STS perspective. Since the proposal stage, it has been agreed to conduct research on the meanings and barriers of users and non-users in engaging with this new technology and to use this information to inform the development of the app conceptually inspired by STS research on 'situated intervention' (see Zuiderent-Jerak and Jensen 2007; Zuiderent-Jerak 2015). This collaboration has fostered the importance of accounting for users' and non-users' perspectives (Weiner and Will, 2016; Wyatt 2003) on digital health technology in the development process but is also more generally inspired by STS scholar Jane Calvert's approach 'that incorporates observation of, collaboration with, and intervention into science and engineering' (2024, 174). In practical terms, the authors agreed that the social science team will conduct an ethnographic study of the app development process in the making in the STS tradition of laboratory

---

[3] Nutri-Score is a front-of-pack nutrition label that informs consumers about the nutritional value of the products. The label uses a colour code scheme (dark green to red) and letters (from A to E) to convey the healthiness of the product (Egnell et al. 2018).

studies (Latour and Woolgar 1979). In this sense, the authors view the research project and collaboration as a study of knowledge in the making for and about computer science, algorithmic decision-making and app development.

During the initial phase of the project the technical infrastructure has been developed by a team of computer and information scientists based in Switzerland. Their efforts were supported by a team of computers scientists in Korea, who focused on graph analytics techniques to support the technical systems set-up. The international collaboration was facilitated by the funding scheme that seeks to foster collaborative research in the domain of science and technology between Switzerland and Korea. In parallel, a team of social scientists (including the authors) conducted mixed-method research to explore users' and non-users' perspectives on uses of customer loyalty cards, grocery shopping data, food habits, dietary and self-tracking apps in general and the FoodCoach prototypes and mock-ups in particular. Other collaborations were also built to develop the infrastructure, test the prototype, and conduct the related surveys and implement the recommendations provided by the app.

Thanks to the recently introduced European General Data Privacy Regulation (the Article 29 Data Protection Working Party, in 2016), retailers must now allow retrieval of electronic copies of digital receipts by each respective individual data subject. Digital receipt data becomes especially meaningful when correlated with ingredient data. Because of European regulations on food declaration (EU-1169/2011 2014), also ratified in Switzerland, producers must now publish their ingredients data online. Hence, digital receipt data and product ingredient data has become increasingly available in Switzerland. By using the donated data of the participants in the project and a database that contains all relevant nutrient information per food item sold by the two respective food retailers—which jointly have a market share of 70%—involved in the project (Fuchs 2020), the computer scientists had the opportunity to develop a trustable algorithm that relates household current food purchasing (analysed in relation to food categories and nutritional components) and individualised food purchasing tips to improve health.

Over the four-year project time several prototypes of FoodCoach have been developed. A first prototype was tested in 2021, for which developers validated the positive impact of tailored interventions based on digital receipt data to shop healthier and tested the option of using an avatar, which actually was perceived by some users as uncanny and promoted negative feelings. A second and similar prototype was also tested in 2021 by integrating a reward for users in order to test the impact of a gamification feature. A third prototype was developed at the end of 2022; this includes changes to the sign-up and data handling procedures, and has been used to: 1) evaluate whether the application could be deployed at population

scale; and 2) isolate those parts of the system that need to be adapted for deployment in other regions (e.g., different countries with different grocery stores). Furthermore, this system integrates an automatic recommendation system that was developed as part of a collaboration with a Swiss university hospital.

In addition to the FoodCoach system, which aims at fully automated dietary counselling, a human-in-the-loop solution is in development, supporting dietitians in physical and synchronous counselling sessions with patients. This is part of a next-step project, DietCoach, and is achieved by making the patients' shopping data available to dietitians. Dietitians can then give structured recommendations with healthier product alternatives to patients via a web application. To align the research, technical, and clinical objectives of the FoodCoach team, a few technical adjustments are being made. The developers expect this final prototype to be effective with respect to the recruitment of larger numbers of study participants (both for fully automated recommendations and for dietitian-in-the-loop counselling), and it will permit the inclusion of features that emerge from real uses and issues in a healthcare context.

An ethnography of the FoodCoach app in the making

Methods

The authors and social scientists in the team have collected data through different methods:

1) Participant observation of the development process of the technology, including most of the team meetings and meetings with external collaborators;

2) Six semi-structured interviews with three members of the Swiss team and two collaborators on the project and many informal conversations following the meetings between the authors;

3) Autoethnography conducted by the first author when testing the three prototypes and participating in the related surveys;

4) Fifteen go-alongs with users and non-users of customer loyalty cards and dietary and health-tracking devices, where the first author accompanied ordinary food shops in the supermarkets of the most popular food retailers in Switzerland and conducted interviews;

5) Four focus groups with users and non-users of customer loyalty cards and dietary and health-tracking devices (n=26);

6) an online survey (n=441) and follow-up interviews (n=21) on the meaning of eating well and use of digital eating and fitness social platforms (Stehrenberger, Danesi and Schneider 2024).

All interviews, go-alongs and focus groups were audio- and/or video-recorded to facilitate transcription. Field notes of the team meetings and autoethnography were also taken throughout. In this article, we mobilise the empirical material collected through the go-alongs and the focus groups.

The first author conducted six video-recorded go-alongs in Zoom and nine in person, and audio-recorded go-alongs between January and June 2021. For each, she had a small conversation with the participant before they entered the supermarket to collect general information about the specific shopping to be done, and possibly other related habits. She then followed the participant during the food purchasing and discussed their shopping. Each go-along was followed by an informal or semi-structured interview, depending on the context in which the go-along took place, on the uses of digital devices and apps in relation to food, nutrition, and fitness.

Between February and March 2022 we conducted four focus groups of about 75 minutes each on Zoom with users and non-users of food purchasing loyalty cards and dietary and health-tracking devices. We opted for a virtual set-up to avoid risks of cancellation due to COVID restrictions and to involve enough participants from various linguistic regions of Switzerland who spoke the same language. Two focus groups were conducted in English to include as many participants as possible in a mutually convenient time slot. In these focus groups we had participants coming from the three major linguistic regions of Switzerland. We conducted one focus group in French for participants living in the French-speaking part of Switzerland. Finally, a colleague conducted a focus group in German for the German-speaking participants. In total 26 persons of various sociodemographic profiles took part; between five and eight persons participated in each focus group. During these focus groups, we used visual prompts in a PowerPoint presentation related to daily food and purchasing practices, uses of loyalty cards, digital health and diet-related apps to collect views and experiences in relation to them.

Participants in the users' and non-users' study

Due to the snowball sampling in the recruitment of the participants for the go-alongs and focus groups, the profile of our study is diversified in terms of gender, age, income, profession, cultural background, linguistic and geographic regions but not particularly in terms of educational background for the focus groups (Appendix: Table 1 and Table 2).

Analysis

We have conducted iterative and thematic analysis of the various empirical materials we have collected over two years of ethnographic research. This includes joint work on empirical material, such as discussion on the meetings in which either one or both of us have participated, and a collective analysis session with other social science colleagues in our research group and with the leader of the computer science team on the transcriptions of the focus groups. For the purposes of this article, we focus on a prominent theme that emerged from the go-alongs and focus group, namely the challenge of delegating expertise to an automated system. Specifically, we focus on six key themes that we identified as relevant to the challenges of delegating expertise to an app in the context of digital dietary tracking:

1) attitudes toward delegating caring work to a machine;

2) the sensitive boundaries between care and control;

3) the partial and limited personalisation of automated dietary tracking systems;

4) the diverse values at play in making healthy food choices and consuming healthy food;

5) trust in the institutions behind the data and technology;

6) the controversial and limited vision of nutritional standards.

The challenge of delegating expertise to an app

We have collected very different views of the users and non-users in relation to delegating healthy food choices to an app. These diverse perspectives shed light on the complex panorama of what it means to distribute decision-making among various actors and to delegate decisions about what to put on our plates and in our bodies to an automated system. We will discuss these themes by presenting some of the individuals we have encountered during our research, who have very different visions on using FoodCoach for making healthier choices when purchasing food and possibly eating.

Some mediated caring work is better than being left alone

Claudio[4] is a young student (23 years old), who is studying at university in a small town of Switzerland. Even if he buys most of his groceries from the two major Swiss food retailers on whose data the FoodCoach project relies, because they are on his way home, he does not have either of their loyalty cards. He does not see 'much added value (. . .) from having them.'[5] His disinterest is not connected to data privacy issues: 'I don't mind [that] because I don't see how they can directly influence my life or could pose a danger to me, due to the fact that they have my data.'

After being presented a mock-up of FoodCoach, Claudio said he would be happy to subscribe to these loyalty cards in order to use the app, to analyses his food purchasing and pay more attention to his diet. He explained that he had not been concerned about his diet when he was living with his parents. He would eat what they cooked: 'My parents, who have more years of life and more experience, know what is good, what is bad.' Now that he is in a transitional phase because he has moved out of his parents' home, he feels that he needs support to know what and how to eat to have a healthier diet, and that an app could be beneficial. In his view, FoodCoach could replace his parents in caring for his diet, and his wellbeing more broadly.

Is this caring work perceived as an excess of control?

Claudio's comment on not being bothered by sharing personal data with food retailers was prompted by Elinor's (university student, 26 years old) statement that she wouldn't want to use an app that gives her health-related tips on what to purchase, because she would not like 'to be controlled by an app.' She expressed a very different attitude toward the possibility to delegate some caring work to an automated system. She does not imagine this as caring, but as controlling.

Magda is a 30-year-old PhD student living in a big city. She has both loyalty cards, but she does not use them often. While she is not concerned about her data (because 'there is worse that can be tracked today'), she does not use diet-tracking apps because she thinks it is 'very easy to go overboard'. For her, to be on a diet is 'something about control and controlling yourself.' The risk is of excessive self-control rather than excessive surveillance. She would avoid an invited form of care inscribed in FoodCoach that would push her to excessively control her food intake, which does not correspond to her logic of caring about food. She is more

---

[4] The names used are pseudonyms.
[5] All translations from Italian and French are by the first author and from the focus group in German by the PhD student who has collaborated in the project.

concerned about 'where does this stuff come from': if, for example, the eggs she buys are from free-range chickens, or the fish from sustainable fishing.

While Claudio perceived the personalised tips given by FoodCoach as useful and somehow comforting, Elinor and Magda experienced negative feelings and fear of being scrutinised and dictated to by a machine. Echoing the ambivalences of care between support and control discussed by de la Bellacasa (2017), there is a tension between using this kind of app as a tool to help with food preparation and choice, and as one to promote self-discipline.

How can an app know more about what is good for me?

In addition to her fear of ceding control over her food consumption and eating behaviours, an additional concern of Magda's is that she would have to rely on a system that only has a partial view of what she eats. FoodCoach would profile her on the basis of her purchasing in specific shops, but other information would be missing. For instance, she does not purchase fruits and vegetables in the two retailers' shops.

A similar concern from a different perspective was expressed by Alice (40 years old), a designer and teacher living in the same city as Magda. Her concern in delegating expertise to FoodCoach is that she eats out a lot during her working days in the school, mostly pizza and sandwiches. She usually prepares healthy food when she eats at home or when she is working in her office where she can prepare her food, trying to compensate for the deficit of vegetables during a few days per week. So, FoodCoach cannot tell her much about buying healthier food, because she already has very healthy food in her shopping basket, and it would not catch the number of sandwiches and snacks she would buy in the takeaways when she is travelling to the school in which she teaches a couple of days per week. Nonetheless, she is already aware that these are her major eating-related issues and she believes that FoodCoach would not be able to properly address them.

Kevin, a consultant (30 years old) living in another big Swiss city, also highlighted that, because it would be limited to only what he bought from the two major retailers, his food data would be sporadic. He is thus also concerned about the accuracy of the profiling and analysis on which FoodCoach's recommendations to him would rely. In addition, he has health concerns related to past weight problems and he said that he prefers to monitor his food intakes himself by using his knowledge, spreadsheets of basic ingredients, macronutrients and calories, and a piece of paper, a system he developed with the help of a nutritionist and improved through experience.

Bettina (55 years old) is a teacher in continuing education, living with her daughter in a small village. She does not believe FoodCoach could 'work for me' to improve her diet because she has 'special needs'. She is coeliac and intolerant to milk products. She would not 'like to delegate to anyone' to decide what her household eats, because she and her daughter have very different needs and habits, but also because 'I'm too aware of what we eat and what I need for a balanced meal and so on and so forth to delegate to another.'

Throughout their lives, people develop knowledge about what is good for them and the people they care for, and they also decide which logic of good they would follow in general or in relation to specific circumstances that are important in their lives. For Alice, there is a distinction between what is good for her to eat at home when she has time for a proper home-cooked meal and what is the best option she can choose when she has to travel for her work; for Bettina, the best balance must be struck between her special needs and the needs of her daughter, and choices made about cooking and sharing proper meals at home. As Vogel and Mol (2014) have highlighted, the question is not 'Am I being good?', but 'Is it good for me?' (315).

The different values of food and eating

Mike (25 years old) is a student of medicine who lives in a big city. He uses his mother's loyalty cards and shops mostly in the two major food retailers related to the data donation process for the FoodCoach project. He does not use diet-related apps because 'for me food is also strongly related to happiness.' In his view, paying attention to food is fine, but paying too much attention to it risks becoming 'an obsession', and this affects the 'happy relationship' he has with food and eating. A positive relationship to food and eating, he feels, should provide 'joy', and not negative emotions that can derive from excessive control over what to put on the plate and in his body to follow nutritional and/or ecological recommendations. For him, it is a matter of quantity of attention that make the difference between taking care of what you eat and becoming excessively worried and thus impacting the pleasure you can take from eating. Here, there is a precarious balance between pleasure and control. Pleasure is not the opposite logic of healthy (Mol 2013). People can be staying healthy by 'self-caringly enjoying' (Vogel and Mol 2014) their food.

Mike added that he also has 'some knowledge about what's healthy, what's not healthy.' He sees a correlation between the lack of success of dietary apps to the kind of users of these apps. In his understanding:

> People who have these apps already have enough knowledge and are already interested enough in the topic and will probably benefit less from these apps

than other people that probably don't really care about buying healthy food or sustainable food.

There is, in his view, a clash between the logic of good of the app and the person who would benefit from it.

Mia, a writer (55 years old) living in a small city, emphatically defines herself as non-user of dietary apps, of which she has strong opinions. She describes herself as having a reasonably good body image, a strong cooking culture and that she was raised in a 'healthy' food environment:

> I consider myself to have a reasonably good body image. I grew up in a home where cooking was very good and very conscious. My mother cooks sensationally, also with raw materials where you know where they come from. When I was working on my doctorate, we used to . . . I lived in my parents' house for part of the time . . . we used to sit together in the evenings. She read the weirdest cookbooks, not just recipe books, but with the most comprehensive food science and all kinds of things, until at some point I said: now you either stop or you cook this now. So, long before I could cook myself, I didn't see any need to be able to do that with this mother, but I was totally fit in food.

She feels that the kind of suggestions given by these apps are 'much too standardised for me. So, the chocolate was now evil and you should not eat it and is too much sugar in it and it is but does not make a distinction as to which chocolate I eat'. FoodCoach cannot capture the nuances it needs to provide 'good' information to her, such as 'not all chocolate is bad', or 'it is crucial to take the time to cook from raw ingredients.' She finds standardisation and generalisation problematic because in her view, an app dictating directly what one is 'allowed or not to do' is a bad way to teach about health, as it doesn't help people improve their insight, awareness, or sense. To improve their diets, she believes people need more varied and experience-based information, based on what's appropriate situation by situation rather than strict rules. 'Taking their [users or patients'] situatedness seriously' (Vogel and Mol 2014, 315) is an empirically based intervention to be made in the context of a collaborative research project.

Trust in institutions and their authority

Behind the question of whether or not to delegate important decisions on what to buy and eat to stay healthy, improve health or avoid the development of metabolic disorders to FoodCoach, emerges another question: To whom are we delegating? Approaching users and non-users as experts and involving them in a research project founded by a national scientific research foundation helped us in gaining

trust as researchers affiliated with an academic institution and without commercial interests.

Nonetheless, the use of customer data collected through loyalty cards of two Swiss food retailers and the use of an intermediary institution for purposes of data donation in the first prototypes of the FoodCoach app required explanation to potential research participants as well as onboarding support. We had to explain to the participants that these companies will have their data anyway if they already have a loyalty card, and the intention of the project was to produce valuable information from this data for the users themselves. Nonetheless, this argument was not enough for people who do not have these cards for privacy reasons to become members and generate data to donate for testing a prototype of the research project. During our discussions with users and non-users, we received many questions about the institutions behind the FoodCoach system.

Nathan, a university professor (40 years old), who is a user of self-tracking technologies of health and eating and likes to try new technologies, pays attention to the institutions behind them. He also uses technologies produced by big companies such as Apple because he is happy about their precision and features, such as the ability to measure swimming. When it comes to assessing the quality of products in a supermarket, he was happier to use an app run by an association without economic interests because in his view they have different workings, different privacy criteria and different ends from large corporations.

Maya, a research assistant (30 years old), who is not using any diet-related app because she associates them with 'guilt' and thinks she is already 'hard enough with myself when I should eat healthy and when I can eat less healthy', amplifies the opinion of Nathan by saying that 'I really trust myself more, and less discourses around what's healthy, what's not healthy.' So, in line with Alice, Bettina and Mia, she trusts her embodied and personal knowledge in making healthy choices more than general knowledge. She also believes that behind the app giving you this information is the economic interests of the institution or company which produces it (except if you opt for 'trustable' foundations and associations that do not have 'business behind', but in that case you still need to find out information about trustable institutions for yourself.)

These persons were experts not only about their eating- and health-related experiences and daily routines in which their eating habits are embedded but they were also experts of the mechanisms behind the development of these technologies and questioned the actors, processes, purposes, data privacy issues involved when taking decisions about whether to use them and which ones to use.

The hegemony of biomedical standards and controversies around them

Another crucial aspect is related to controversies behind the nutritional information on which the system should rely. As Nathan points out:

> The problem is that much of that knowledge is controversial constantly and so even the different way of scoring things, there are different paradigms, but all in all they're providing interesting information because when food is crap it is crap. And all scores say it, basically for one reason or another. So, there might be disagreement on certain things.

'What facts and sciences are drawn upon turns out to be of pivotal importance in what constitutes 'healthy living'' (Vogel 2018, 392). These are sometimes in tension, embedded in power relations but not exclusive approaches of *doing good* in health-related practices, such as 'metabolic logics' behind weight management or dieting practices (Vogel 2018). In engaging in care practices, patients, healthcare professionals, scientists engage, follow and might question the logics behind specific programmes and techniques. A similar view comes from Tobias, another university professor (60 years old), who questions which kind of regimes to follow:

> My question would be if you look at the experts of diets, there are so many experts, and they all have contrary advice. Ones say reduce carbohydrates, the other say do that and so on, they're quite contradictory. So, how do you integrate this in in this system? So, they have to rely on one expertise.

Tobias is concerned about FoodCoach making a choice on which diet you should opt for. Mia is also aware of conflicts between different food regimes and logics behind eating and dieting. In her view there are 'an incredible number of competing food philosophies, ideologies, diets, whatever', and it is crucial to know according to which you are defining and evaluating 'good' food choices (Mol 2013). 'So some want low carb, the next vegan, the next but one are lacto something, the next after find Paleo great and . . . '. Mia described them as 'competing values', emphasising only their difference rather than relative correctness or incorrectness.

Beyond the issue of trust, this discussion highlights but also problematises that nutrition science is by now the dominant, if not mainstream, perspective through which many technology developers approach food when conceiving and developing an app.

Discussion

Our analysis reveals that the delegation of dietary expertise to an automated system poses a challenge for many of our participants. Beyond 'practice conflicts' causing technology failures (Fuentes, Cegrell and Vesterinen 2021) and general concerns about privacy and trust, our participants pointed to the limits of what we would describe as datafication and metrification related to food and eating. They emphasised what is neglected in the process of developing this type of system enabling dietary tracking, mainly their own dietary but also bodily and sociocultural expertise of what is good for them and their significant others. We suggest that the feedback reveals 'value conflicts' for those who value food and eating beyond its nutritional qualities, mostly relying on standardised but also controversial scientific standards. Many people would never delegate this kind of decisions to an app because they consider themselves better experts about their own needs than an app, which not only has limited and partial data on their habits but also cannot catch situatedness—even if labelled under 'personalised'. The dietary expertise and awareness these persons have developed through their past experiences of, for example, dieting practices, changing eating habits due to different daily routines, shopping differently due to the proximity of specific shops, and cooking themselves rather than buying convenience food, gave them the confidence to trust their strategies to make 'good choices'.

If people are looking for guidance and care work by delegating to technology decisions about their life (Schüll 2016), they also need to trust the people or institutions behind that technology. It has been widely discussed how biomedical knowledge is governing our life and how difficult it is to live without this expertise, at least in relation to some aspects of our lives (Rose 2006). It is challenging to contest the expertise of medical authority. Today, it is also very difficult to challenge the expertise inscribed in medical devices related to biomedical standards and in consumer technologies that quantify many aspects of our lives, based on science and 'healthism' (Crawford 1980) and focused on the commercialisation of wellbeing. Biomedical expertise has been politically contested by some social movements (such as feminists and patient associations) (Kaufert 1998; Epstein 1995). More and more social movements fighting for the ethical concerns related to privacy issues have grown in relation to the datafication of private life, but far less discussed is the kind of expertise inscribed in digital technologies that are increasingly shaping everyday life. As Hilgartner (2000) illuminates, the credibility of expert advice is produced, challenged, and sustained and its authority is often problematic. Many experts coming from various fields and disciplines are behind the evaluations on what we should eat in relation to many aspects: safety, health, sustainability. We have scientists, physicians, engineers and many others. Other perspectives than nutrition sciences, including scientific

perspectives on food and eating, exist but are less prominent. This dominance of what Scrinis calls 'nutritionism' (2013)—which has a reductive account of the nutritional qualities of foods and the evaluation of their effect on the body by quantifying their nutritional content and designating 'good' and 'bad' macronutrients (Vogel 2018)—or others as 'healthism' (Crawford 1980)—which, like medicine, situates the problem of health and disease at the level of the individual rather than also considering structural barriers—leads many people to assume that there is a 'perfect diet', which in turn leads to an intense moralisation of eating, health and bodies (Guthman 2011). Hayes-Conray (2016) describes this as 'hegemonic nutrition' and calls for 'doing nutrition differently'. Some of our participants are pointing out or are seemingly advocating for such a broader view. However, such a broader practice of nutrition and eating is hard to capture in a system and app that relies on a single algorithm to compare different food products—in the case of FoodCoach the Nutri-Score.

Despite the expansion of nutritional sciences in public discourse on food and eating in the last 30 years, the meanings people attach to food and eating relate to other registers more embedded in everyday and embodied knowledge than in nutritional standards. Even persons who wish to improve their diet and have a common sense of what a well-balanced meal is do not wish to reduce eating to standardised metrics, which can be a useful heuristic but are problematised by users for various reasons, as we have illustrated in the article. Thus, this article sheds light on how potential users and non-users react to the prospect of delegating expertise to a dietary monitoring and intervention app when it comes to deciding what it is good and bad to eat for them.

Conclusions

Taking seriously the views, discourses and practices of persons who use and do not use dietary and health-tracking apps and data in the development of technology, is a way of engaging with lay people and processes of (re-)making expertise (Boyer 2008). We believe it is central for understanding the potential use of the FoodCoach app. More generally participatory research is increasingly recognised as important in research on technology that affects people's lives, such as their health and healthcare work (Bødker et al. 2022; Harting et al. 2022; Jensen et al. 2021; van Voorst 2024).

In being 'collaborators' and in trying to make an 'intervention' rather than just being 'observers' (Calvert 2024), in the FoodCoach research we have certainly fostered a network of actors that each exemplify different meanings of and values attached to healthy eating or more broadly of different logics shaping the values behind

'good or bad choices' about eating. The persons we have met in the process of developing FoodCoach attach different values to food and eating and in that sense they also have very different expectations on what an app should tell users, how it should be integrated in daily life and what kind of data and standards should be part of the system. It shows the diversity of understanding good, balanced and healthy eating in the different groups involved and in society more broadly and the difficulty of integrating multiple food values in one technology. By inviting users and non-users who attach different meanings to food to join the research and app development, we opened to such diversity and learned that the co-existence of diverse food values common in society is difficult to translate into one app. As STS scholars rather than consumer science researchers our 'intervention' (Calvert 2024) in the development of FoodCoach was not conceived (at least not explicitly) by the team as a contribution to make it successful, and we have not disappointed anyone by not giving explicit advice in helping them to make FoodCoach more appealing for users. We might have experienced some discomfort when not being able to provide clear and linear indications on the path to follow, especially in our choice to take the path of contingency. We have at the same time established conversations engaging with 'otherwising' (Calvert 2024) for all of us. Further research on the process of negotiating expertise in interdisciplinary and participatory research collaborations would benefit from a common and solid but also permeable ground where the project can grow through earlier interdisciplinary activities.

Authorship statement

Giada Danesi and Tanja Schneider are co-authors of the article. The article has been mainly conceived by Giada, who also wrote the first draft. Nonetheless, Tanja has contributed from the beginning on all reflections related to this article as PI of the project and main collaborator in designing the qualitative and ethnographic part of the research and analysing these data. Tanja has also contributed in writing parts of the article and in improving multiple versions of the article shared by Giada.

Ethics statement

Acknowledgements

About the authors

Giada Danesi is a Senior Researcher at the University of Applied Sciences and Arts of Southern Switzerland and an Research Associate at STS Lab of the University of Lausanne. Drawing from social studies of health, STS and ethnographic and qualitative approaches, her research investigates knowledge, care practices and technologies in the fields of rare and chronic diseases and eating and nutrition. She is on the board of the Swiss Association of STS and Fellow at the Swiss School of Public Health.

Tanja Schneider is Associate Professor of STS and Head of the Human-Centred Innovation section at the Technical University of Denmark, and a Research Affiliate at the Institute for Science Innovation & Society in the Department of Anthropology at the University of Oxford. Her research is situated at the intersections of STS and economic sociology/market studies with a strong thematic research interest in food science and technology. She is currently Vicechair of the Danish Science and Technology Studies Association.

References

Ajana, Btihaj. 2017. 'Digital Health and the Biopolitics of the Quantified Self.' *Digital Health* 3: 1–18. https://doi.org/10.1177/2055207616689509.

Akrich, Madeleine, and Vololona Rabeharisoa. 2012. 'L'expertise profane dans les associations de patients, un outil de démocratie sanitaire.' *Santé Publique* 24 (1): 69–74. https://doi.org/10.3917/spub.121.0069.

Atkinson, Paul, and Richie Barker. 2021. '"Hey Alexa, What Did I Forget?": Networked Devices, Internet Search and the Delegation of Human Memory.' *Convergence* 27 (1): 52–65. https://doi.org/10.1177/1354856520925740.

de la Bellacasa, Maria Puig. 2017. *Matters of Care. Speculative Ethics in More Than Human Worlds*. Minneapolis, MN: Minnesota University Press.

de Bellis, Emanuel, Gita Venkataramani Johar, and Nicola Poletti. 2023. 'Meaning of Manual Labor Impedes Consumer Adoption of Autonomous Products.' *Journal of Marketing* 87 (6): 989–65. https://doi.org/10.1177/00222429231171841.

Bødker, Susanne, Christian Dindler, Ole S. Iversen, and Rachel C. Smith. 2022. 'What Is Participatory Design?' In *Participatory Design*, edited by Susanne Bødker, Christian Dindler, Ole S. Iversen, and Rachel C. Smith, 5–13. Cham: Springer International Publishing.

Boyer, Dominic. 2008. 'Thinking through the Anthropology of Experts.' *Anthropology in Action* 15 (2): 38–46. https://doi.org/10.3167/aia.2008.150204.

Boyer, Dominic. 2010. 'Digital Expertise in Online Journalism (And Anthropology).' *Anthropological Quarterly* 83 (1): 73–95. https://doi.org/10.1353/anq.0.0114.

Calvert, Jane. 2024. *A Place for Science and Technology Studies: Observation, Intervention, and Collaboration*. Cambridge, MA: MIT Press.

Carr, E. Summerson. 2010. 'Enactments of Expertise.' *Annual Review of Anthropology* 39 (1): 17–32. https://doi.org/10.1146/annurev.anthro.012809.104948.

Crawford, Robert. 1980. 'Healthism and the Medicalization of Everyday Life.' *International Journal of Health Services* 10 (3): 365–88. https://doi.org/10.2190/3H2H-3XJN-3KAY-G9NY.

Cukier, Kenneth Neil, and Viktor Mayer-Schoenberger. 2013. 'The Rise of Big Data.' *Foreign Affairs*, 1 May. https://www.foreignaffairs.com/articles/2013-04-03/rise-big-data.

Danesi, Giada, Mélody Pralong, Francesco Panese, Bernard Burnand, and Michèle Grossen. 2020. 'Techno-Social Reconfigurations in Diabetes (Self-) Care.' *Social Studies of Science* 50 (2): 198–220. https://doi.org/10.1177/0306312720903493.

Didžiokaitė, Gabija, Paula Saukko, and Christian Greiffenhagen. 2018. 'Doing Calories: The Practices of Dieting Using Calorie Counting App MyFitnessPal.' In *Metric Culture*, edited by Btihaj Ajana, 137–55. Leeds: Emerald Publishing Limited.

Egher, Claudia. 2023. 'Studying Expertise Online.' In *Digital Healthcare and Expertise: Mental Health and New Knowledge Practices*, edited by Claudia Egher, 1–36. Singapore: Springer Nature.

Egnell, Manon, Pauline Ducrot, Mathilde Touvier, et al. 2018. 'Objective Understanding of Nutri-Score Front-Of-Package Nutrition Label According to Individual Characteristics of Subjects: Comparisons with Other Format Labels.' *PloS One* 13 (8): e0202095. https://doi.org/10.1371/journal.pone.0202095.

Epstein, Steven. 1995. 'The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials.' *Science, Technology, & Human Values* 20 (4): 408–37. https://doi.org/10.1177/016224399502000402.

Fischler, Claude. 1979. 'Gastro-nomie et gastro-anomie.' *Communications* 31 (1): 189–210. https://doi.org/10.3406/comm.1979.1477.

Flaherty, Sarah-Jane, Mary McCarthy, Alan Collins, and Fionnuala McAuliffe. 2018. 'Can Existing Mobile Apps Support Healthier Food Purchasing Behaviour? Content Analysis of Nutrition Content, Behaviour Change Theory and User Quality Integration.' *Public Health Nutrition* 21 (2): 288–98. https://doi.org/10.1017/S1368980017002889.

Fuchs, Klaus. 2020. *Empowering Diet-Related Health Behavior Change Interventions via Digital Receipts & Food Composition Databases*. PhD thesis. ETH Zürich. https://doi.org/10.3929/ethz-b-000450599.

Fuentes, Christian, Olivia Cegrell, and Josefine Vesterinen. 2021. 'Digitally Enabling Sustainable Food Shopping: App Glitches, Practice Conflicts, and Digital Failure.' *Journal of Retailing and Consumer Services* 61: 102546. https://doi.org/10.1016/j.jretconser.2021.102546.

Grundmann, Reiner. 2017. 'The Problem of Expertise in Knowledge Societies.' *Minerva* 55 (1): 25–48. https://doi.org/10.1007/s11024-016-9308-7.

Guthman, Julie. 2011. *Weighing In: Obesity, Food Justice, and the Limits of Capitalism*. 1st edition. Berkeley, CA: University of California Press.

Harting, Janneke, Kasper Kruithof, Lotte Ruijter, and Karien Stronks. 2022. 'Participatory Research in Health Promotion: A Critical Review and Illustration of Rationales.' *Health Promotion International* 37 (Supplement 2): ii7–20. https://doi.org/10.1093/heapro/daac016.

Hayes-Conroy, Allison, ed. 2016. *Doing Nutrition Differently: Critical Approaches to Diet and Dietary Intervention*. London: Routledge.

Henwood, Flis, and Benjamin Marent. 2019. 'Understanding Digital Health: Productive Tensions at the Intersection of Sociology of Health and Science and Technology Studies.' *Sociology of Health & Illness* 41 (S1): 1–15. https://doi.org/10.1111/1467-9566.12898.

Hilgartner, Stephen. 2000. *Science on Stage: Expert Advice as Public Drama*. Stanford, CA: Stanford University Press.

Hoeyer, Klaus. 2023. *Data Paradoxes: The Politics of Intensified Data Sourcing in Contemporary Healthcare*. Cambridge, MA: MIT Press.

Hoeyer, Klaus, Susanne Bauer, and Martyn Pickersgill. 2019. 'Datafication and Accountability in Public Health: Introduction to a Special Issue.' *Social Studies of Science* 49 (4): 459–75. https://doi.org/10.1177/0306312719860202.

Jansky, Bianca, and Henriette Langstrup. 2022. 'Device Activism and Material Participation in Healthcare: Retracing Forms of Engagement in the #WeAreNotWaiting Movement for Open-Source Closed-Loop Systems in Type 1 Diabetes Self-Care.' *BioSocieties* 18: 498–522. https://doi.org/10.1057/s41292-022-00278-4.

Jensen, Torben Elgaard, Andreas Birkbak, Anders Koed Madsen, and Anders Kristian Munk. 2021. 'Participatory Data Design: Acting in a Digital World.' In *Making and*

Doing: Activating STS through Knowledge Expression and Travel, edited by Gary Downey and Teun Zuiderent-Jerak, 117–36.

Kaufert, Patricia Alice. 1998. 'Women, Resistance, and the Breast Cancer Movement.' In *Pragmatic Women and Body Politics*, edited by Margaret Lock and Patricia Alice Kaufert, 287–309. Cambridge: Cambridge University Press.

Kent, Rachel. 2020. 'Self-Tracking and Digital Food Cultures : Surveillance and Self-Representation of the Moral "Healthy" Body.' In *Digital Food Cultures*, edited by Deborah Lupton and Zeena Feldman, 19–34. London: Routledge.

Kerr, Anne, Sarah Cunningham-Burley, and Amanda Amos. 1998. 'The New Genetics and Health: Mobilizing Lay Expertise.' *Public Understanding of Science* 7 (1): 41–60. https://doi.org/10.1177/096366259800700104.

Kusenbach, Margarethe. 2003. 'Street Phenomenology: The Go-Along as Ethnographic Research Tool.' *Ethnography* 4 (3): 455–85. https://doi.org/10.1177/146613810343007.

Latour, Bruno, and Steve Woolgar. 1979. *Laboratory Life: The Social Construction of Scientific Facts*. Beverly Hills, CA: Sage.

Lupton, Deborah. 1996. *Food, the Body and the Self*. London: SAGE.

Lupton, Deborah. 2018a. 'How Do Data Come to Matter? Living and Becoming with Personal Data.' *Big Data & Society* 5 (2): 2053951718786314. https://doi.org/10.1177/2053951718786314.

Lupton, Deborah. 2018b. '"I Just Want It to Be Done, Done, Done!" Food Tracking Apps, Affects, and Agential Capacities.' *Multimodal Technologies and Interaction* 2 (2): 29. https://doi.org/10.3390/mti2020029.

Lupton, Deborah, ed. 2018c. *Self-Tracking, Health and Medicine: Sociological Perspectives*. Abingdon: Routledge.

Lupton, Deborah. 2019. *Data Selves: More-than-Human Perspectives*. New York, NY: Polity Press.

Lupton, Deborah, and Zeena Feldman, ed. 2020. *Digital Food Cultures*. London: Routledge.

Marent, Benjamin, and Flis Henwood. 2023. 'Digital Health: A Sociomaterial Approach.' *Sociology of Health & Illness* 45 (1): 37–53. https://doi.org/10.1111/1467-9566.13538.

Mead, Geoffrey, and Barbara Barbosa Neves. 2022. 'Contested Delegation: Understanding Critical Public Responses to Algorithmic Decision-Making in the UK and Australia.' *The Sociological Review* 71 (3): 00380261221105380. https://doi.org/10.1177/00380261221105380.

Mol, Annemarie. 2000. 'What Diagnostic Devices Do: The Case of Blood Sugar Measurement.' *Theoretical Medicine and Bioethics* 21 (1): 9–22. https://doi.org/10.1023/A:1009999119586.

Mol, Annemarie. 2010. 'Care and Its Values: Good Food in the Nursing Home.' In *Care in Practice: On Tinkering in Clinics, Homes and Farms*, edited by Annemarie Mol,

Ingunn Moser, and Jeannette Pols, 215–34. 1st edition. Bielefeld: Transcript Verlag.

Mol, Annemarie. 2013. 'Mind Your Plate! The Ontonorms of Dutch Dieting.' *Social Studies of Science* 43 (3): 379–96. https://doi.org/10.1177/0306312712456948.

Mol, Annemarie. 2021. *Eating in Theory*. Durham, NC: Duke University Press.

Mol, Annemarie, Ingunn Moser, and Jeannette Pols, ed. 2010. *Care in Practice: On Tinkering in Clinics, Homes and Farms*. 1st edition. Bielefeld: Transcript Verlag.

Nafus, Dawn, ed. 2016. *Quantified: Biosensing Technologies in Everyday Life*. Cambridge, MA: MIT Press.

Nielsen, Karen Dam, and Henriette Langstrup. 2018. 'Tactics of Material Participation: How Patients Shape Their Engagement through e-Health.' *Social Studies of Science* 48 (2): 259–82. https://doi.org/10.1177/0306312718769156.

Oudshoorn, Nelly. 2020. *Resilient Cyborgs: Living and Dying with Pacemakers and Defibrillators*. Health, Technology and Society. Singapore: Palgrave Macmillan.

Petersen, Alan. 2019. *Digital Health and Technological Promise: A Sociological Inquiry*. London: Routledge.

Pols, Jeannette. 2010. 'Telecare: What Patients Care About.' In *Care in Practice: On Tinkering in Clinics, Homes and Farms*, edited by Annemarie Mol, Ingunn Moser, and Jeannette Pols, 171–94. 1st edition. Bielefeld: Transcript Verlag.

Pols, Jeannette. 2014. 'Knowing Patients: Turning Patient Knowledge into Science.' *Science, Technology, & Human Values* 39 (1): 73–97. https://doi.org/10.1177/0162243913504306.

Poulain, Jean-Pierre. 2021. 'Food in Transition: The Place of Food in the Theories of Transition.' *Sociological Review* 69 (3): 702–24. https://doi.org/10.1177/00380261211009092.

Rabeharisoa, Vololona. 2003. 'The Struggle against Neuromuscular Diseases in France and the Emergence of the "Partnership Model" of Patient Organisation.' *Social Science & Medicine* 57 (11): 2127–36. https://doi.org/10.1016/S0277-9536(03)00084-4.

Rabeharisoa, Vololona, and Michel Callon. 2002. 'The Involvement of Patients' Associations in Research.' *International Social Science Journal* 54 (171): 57–63. https://doi.org/10.1111/1468-2451.00359.

Rose, Nikolas. 2006. *The Politics of Life Itself: Biomedicine, Power and Subjectivity in the Twenty-First Century*. Princeton, NJ: Princeton University Press.

Ruckenstein, Minna, and Natasha Dow Schüll. 2017. 'The Datafication of Health.' *Annual Review of Anthropology* 46 (1): 261–78. https://doi.org/10.1146/annurev-anthro-102116-041244.

Schüll, Natasha, dir. 2016. *Databite No. 75*. Data & Society Research Institute. https://www.youtube.com/watch?v=NDlQu1ow_0s.

Schüll, Natasha. 2018. 'LoseIt! Calorie Tracking and the Discipline of Consumption.' In *Appified: Culture in the Age of Apps*, edited by Jeremy Morris and Sarah Murray, 103–14. Ann Arbor, MI: University of Michigan Press.

Scrinis, Gyorgy. 2013. *Nutritionism: The Science and Politics of Dietary Advice*. New York, NY: Columbia University Press.

Sharon, Tamar, and Federica Lucivero. 2019. 'Introduction to the Special Theme: The Expansion of the Health Data Ecosystem – Rethinking Data Ethics and Governance.' *Big Data & Society* 6 (2): 2053951719852969. https://doi.org/10.1177/2053951719852969.

Sikka, Tina. 2023. *Health Apps, Genetic Diets and Superfoods: When Biopolitics Meets Neoliberalism*. London: Bloomsbury Academic.

Stehrenberger, Aline, Giada Danesi, and Tanja Schneider. 2024. 'More of the Same? How Digital Food Platforms Reinforce Prevailing Eating Interests and Practices.' *Journal of Cultural Economy*, ahead of print, 11 September. https://doi.org/10.1080/17530350.2024.2378472.

Usborne, Simon. 2021. 'Intimate Data: Can a Person Who Tracks Their Steps, Sleep and Food Ever Truly Be Free?' *Guardian*, 5 October. https://www.theguardian.com/lifeandstyle/2021/oct/05/intimate-data-can-a-person-who-tracks-their-steps-sleep-and-food-ever-truly-be-free.

https://doi.org/10.1080/13648470.2016.1276322.

Vogel, Else. 2018. 'Metabolism and Movement: Calculating Food and Exercise or Activating Bodies in Dutch Weight Management.' *BioSocieties* 13 (2): 389–407. https://doi.org/10.1057/s41292-017-0076-x.

Vogel, Else. 2021. 'Enacting Community Health: Obesity Prevention Policies as Situated Caring.' *The Sociological Review* 69 (5): 1072–89. https://doi.org/10.1177/00380261211006327.

Vogel, Else, and Annemarie Mol. 2014. 'Enjoy Your Food: On Losing Weight and Taking Pleasure.' *Sociology of Health & Illness* 36 (2): 305–17. https://doi.org/10.1111/1467-9566.12116.

van Voorst, Roanne. 2024. 'The Medical Tech Facilitator: An Emerging Position in Dutch Public Healthcare and Their Tinkering Practices.' *Medicine Anthropology Theory* 11 (2): 1–23. https://doi.org/10.17157/mat.11.2.7794.

Weiner, Kate, and Catherine Will. 2015. 'Materiality Matters: Blurred Boundaries and the Domestication of Functional Foods.' *BioSocieties* 10 (2): 194–212. https://doi.org/10.1057/biosoc.2015.7.

Weiner, Kate, and Catherine Will. 2016. 'Users, Non-users and "Resistance" to Pharmaceuticals.' In *The New Production of Users: Changing Innovation Collectives and Involvement Strategies*, edited by Hyysalo Sampsa, Jensen Torben Elgaard and Nellly Oudshoorn, 273–96. New York, NY: Routledge.

Weiner, Kate, and Catherine Will. 2018. 'Thinking with Care Infrastructures: People, Devices and the Home in Home Blood Pressure Monitoring.' *Sociology of Health & Illness* 40 (2): 270–82. https://doi.org/10.1111/1467-9566.12590.

Wyatt, Sally. 2003. 'Non-users Also Matter: The Construction of Users and Non-users of the Internet.' In *Now Users Matter: The Co-Construction of Users and Technology*, edited by Nelly Oudshoorn and Trevor Pinch, 67–79. Cambridge, MA: MIT Press.

Zuiderent-Jerak, Teun. 2015. *Situated Intervention: Sociological Experiments in Health Care*. Cambridge, MA: MIT Press.

Zuiderent-Jerak, Teun, and Casper Bruun Jensen. 2007. 'Editorial Introduction: Unpacking "Intervention" in Science and Technology Studies.' *Science as Culture* 16 (3): 227–35. https://doi.org/10.1080/09505430701568552.

Appendix

Table 1: Participants in the go-alongs

Pseudonym	Year of birth	Gender	Place of residence	Profession	Nationality
Myriam	1990	F	French-speaking city	PhD student	Swiss
Veronique	1982	F	French-speaking city	Psychomotor therapist	Swiss
Alice	1981	F	German-speaking city	Graphic designer and teacher	Swiss; British
Vania	1982	F	German-speaking city	Artist and teacher	Swiss
Sonia	1986	F	Small village	Saleswoman	Italian
Nora	1951	F	Italian-speaking small city	Retired (secretary in hospital)	Swiss
Lidia	1967	F	Italian-speaking small city	Nurse	Swiss; Italian
John	1984	M	Small village	Houseman and trainer of martial arts	Brazilian
Gloria	1949	F	Small village	Retired (bank administrator)	Swiss
Amelia	1985	F	Small village	Baby sitter	Spanish
Bea	1975	F	Small village	Housewife (before teacher of physical activity)	Swiss
Sara	1980	F	Small village	Manager of a mountain hut	Swiss
Nadia	1977	F	Italian-speaking small city	Housewife (before administration in private companies)	Swiss

Nina	1986	F	French-speaking city	PhD student	Swiss; French
Caroline	1990	F	French-speaking city	Policymaker	Swiss

Table 2: Participants in the focus group

Pseodonym	Year of birth	Gender	Place of residence	Profession	Nationality
Magda	1992	F	German-speaking city	Specialist advisor in law	Swiss
Bettina	1968	F	Small village	Adult qualification expert	Swiss; Italian
Mike	1997	M	German-speaking city	University student in medicine	Swiss; Italian
Nathan	1979	M	French-speaking city	Professor in higher education	Argentine
Maya	1993	F	French-speaking city	Research assistant	French
Kevin	1986	M	French-speaking city	Researcher and consultant	Lebanese
Lukas	1995	M	Small village	Working student	Swiss; Kosovan
Basile	1989	M	French-speaking city	PhD student	Swiss; French
Pierre	1991	M	Small village	Researcher	Swiss; Japanese
Nadine	1965	F	French-speaking city	Chief of service in health	Swiss
Caroline	1990	F	Small village	Chief of community health	Swiss

Denis	1982	M	French-speaking city	Refrigeration specialist	French
Michèle	1993	F	German-speaking city	PhD student	German
Melanie	1983	F	German-speaking city	Scientific collaborator	German
Tobias	1950	M	Small village	Professor in higher education	Swiss
Jessica	1987	F	German-speaking city	Postdoctoral student	Swiss
Alice	1981	F	German-speaking city	Graphic designer and teacher	Swiss; British
Janine	1971	F	German-speaking city	Lawyer	Swiss
Paul	1965	M	Small village	Management in higher education	Swiss; Australian
Jack	1988	M	German-speaking city	Research assistant	Swiss
Barbara	1965	F	German-speaking city	Management in retirement centre	Swiss
Mia	1968	F	German-speaking city	Private lecturer and writer	Swiss; German
Elinor	1996	F	German-speaking city	Student	Swiss
Aron	1965	M	German-speaking city	Management director	Swiss
Claudio	1999	M	German-speaking city	Student	German
Amber	1997	F	German-speaking city	Student	Swiss; Liechtensteiner