Subjectivities in motion: dichotomies in consumer engagements with self-tracking technologies

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Abstract

With the rise of self-tracking technologies (STT), self-quantification has become a popular digital consumption phenomenon. Despite recent academic interests, self-tracking practices remain poorly understood, in particular, little is known on how consumers engage with STT and how such behavioural trends produce new subjectivities. This paper adopts a Foucauldian perspective of self-surveillance to explore: how do subjectivities emerge from consumer interaction and engagement with self-tracking technologies? Data were collected from twenty participants using an ethnographic research design over six months consisting of semi-structured interviews and participant observation. The findings reveal two sets of dichotomies in the way consumers engage with STT, categorised as: 'health and indulgence' and 'labour and leisure'. Through these dichotomies of self-surveillance, four subjectivities emerged: 'redemptive self', 'awardee', 'loyal' and 'innovator'. Our study presents subjectivities as a continual process of (re)configuration of the self, as consumers move from one dichotomy to another. At the practical level, our findings offer novel approaches to segment consumers by reviewing the different contours of consumer behaviour in their interactions with STT.

Keywords: self-tracking technology, consumer engagement, subjectivity, dichotomy, self-discipline, typology

1. Introduction

Wearables, also known as health and fitness devices, are examples of self-tracking technologies (STT). STT are ubiquitous devices used to monitor, measure and record, in real-time, various aspects of our lives (Lupton, 2014a, 2015a). Consumers voluntarily collect bodily data by adopting STT to experience a sense of control over their lives (Lupton, 2016b) in their quest for a healthy lifestyle (Lupton, 2015b, 2017; Maltseva & Lutz, 2018). Popular examples of STT include smart wristbands and watches by brands such as Apple, Fitbit, Garmin, Samsung and Xiaomi, fashion accessories like Oura Ring as well as mobile applications such as Weight Tracker and BeFit. In the fitness domain, STT primarily monitors and records individuals' physical activities and physiology such as sleeping patterns, body temperature, body mass, calorie intake, heart rate, stress level, emotion, fertility and other forms of veiled bodily information (Evenson *et al.,* 2015; Lupton, 2014a, 2015a, 2015b, 2016b, 2016c, 2017; Nelson *et al.*, 2016; Paul *et al.*, 2015). Contemporary STT, which are typically small and light, are readily attached to the human body to gaze inside it (Lupton, 2013b) as individuals navigate through physical spaces and time (Lupton, 2017).

Existing literature mainly addresses self-tracking practices from a medical perspective in administering patient care (e.g. Andersen & Whyte, 2014; Dennison *et al.*, 2019). The use of STT has been framed as an unobtrusive method for managing people with chronic conditions or disorder (Pentland, 2004). In recent years, the use of STT has gone beyond the confined structures of medicinal practices to become a digital consumption phenomenon with hedonic rewards (Profita *et al.*, 2013; Till, 2014; Gao *et al.,* 2015). Cadmus-Bertram *et al.* (2015) note that the adoption of STT is positively associated with an increased level of physical activity amongst its users. Individuals embrace STT as an opportunity to collect information about their bodies and behaviours in a pleasurable and playful manner (Lupton, 2014a, 2015a). The contemporary self-tracking practices in everyday life are voluntary, where individuals manifest the sense of being "in control" by measuring different aspects of the body, lifestyle choices and behaviours (Lupton, 2016b).

Despite the increasing popularity in self-tracking practices outside the medical industry, the wider social and cultural aspects of self-tracking practices remain overlooked (Thomas and Lupton, 2016). Empirical studies focus on the realm of fitness, looking at specific practices like running (Charitsis *et al.*, 2019) or cycling (Lupton *et al.*, 2018). Studies on how individuals

engage with STT in their everyday lives outside specific sports practices remain scarce (Pink & Fors, 2017). To address this lacuna, this study unpacks the use of STT in people's mundane and routinised practices such as commuting to work, doing housework and looking after a child (Anving & Eldén, 2016). Addressing recent calls for additional research on STT (e.g. Lupton & Jutel, 2015; Pink & Fors, 2017; Sharon, 2017), our study seeks to understand if (and if so how) consumers' subjectivities are re-shaped by their daily engagement with STT. It does so by answering the following question: how do subjectivities emerge from consumer daily interaction and engagement with STT? Theoretically, the study adopts a Foucauldian perspective of self-surveillance through concepts of subjectivities, discipline, knowledge and surveillance.

The contribution of this study is three-fold. By adopting a Foucauldian lens, this research re-orientates our understanding of the contrasting work of self-discipline in self-tracking practices. Empirically, our paper illustrates how consumers' varying engagement with STT produces new subjectivities such as "redemptive self", "awardee", "loyal" and "innovator". The novel theoretical contribution lies in theorising self-trackers as subjects who do not 'always know and can fully control' their bodies and (Bakardjieva & Gaden, 2012, p. 405) and by introducing subjectivities as a continuous process of self-formation. Interactions with STT facilitate consumers' movements between dichotomies, further creating new typologies of consumer segmentations in self-tracking culture. These subjectivities are re-configured through the continuous interaction with STT, thus creating "honest" and "savvy" self-trackers. At the practical level, our findings offer new ways of approaching consumer segmentation as we discover subjectivities that transcend existing typologies in self-tracking culture. Our findings illustrate consumers' engagement with STT in a wider lens, by providing accounts of adhering to self-discipline and deviating from it, as equally important in understanding consumer behaviour in self-tracking. Finally, our paper responds to calls for research (e.g. Pink *et al.*, 2017a) on the role of the mundane and often taken-for-granted elements of everyday routine in integrating STT in people's life. Our research provides insights to the processes underpinning behavioural changes due to the integration of new technologies (Grewal *et al.*, 2020) and recognises STT's ability in reframing everyday practices as meaningful to the production of self-tracking data.

2. Background and literature review: self-tracking technologies

The contemporary consumption practices of self-tracking are underpinned by the ideology of optimised self which celebrates longevity through behavioural changes (Charitsis, 2016). Health-related behaviour becomes the main concern to the optimised self (Davies, 2015) which then slowly nudges the responsibilities of healthcare away from formal institutions, like the clinics and hospitals, and towards the individuals (Bandura, 2005). Behavioural patterns, framed as active, have been capitalised and privatised in the wellness industry (Davies, 2015). Consequently, STT heighten the demand for evidencing bodily activities as a true reflection for one's state of wellbeing treated as data-double (Ruckenstein, 2014) or digital doppelgänger (Bode & Kristensen, 2015). The notion of digital doppelgänger separates the body into physical and digital entities for further scrutiny and othering. Thus, STT translate various bodily experiences, social, emotional and physical environments into objects of reflection.

Lupton's work on self-tracking in pregnancy (Lupton & Pedersen, 2016) and in cycling (Lupton et al., 2018) have introduced important typologies in self-tracking practices and contributed to various discourse concerning its political and ethical aspects like free labour, exploitation (Dewart & Dewart, 2018) and privacy (Ajana, 2017). Whilst STT may be seen as insidious on one hand, such a technology has also been reported as integral to individuals' wellbeing (Lupton & Seymour, 2000). Despite these debates, the amount of personal data generated and gathered through STT has reached an unprecedented scale (Parviainen, 2016). This signifies the widespread adoption of STT and the sales of these cutting-edge technologies (CET) are expected to continue growing (Lupton, 2014a; Nelson et al., 2016; Page, 2015).

The increasing popularity of STT is attributed to its striking features such as ease of use, accessibility, mobility and trustworthiness (Berg, 2017). STT are reportedly linked to perceived health benefits (Lunney et al., 2016). Individuals voluntarily adopt STT to gain autonomy in their lives (Lupton, 2016c) and a hedonic self-tracking experience (Parviainen, 2016; Schüll, 2016). However, anxiety may also shape the motivation for self-tracking practices (Gutierrez, 2016). Berg (2017, p. 3) goes as far as arguing that the industry relies on the 'insecurities of late modern society' and it glorifies alterations in individuals' behaviour to ensure that they are living an active and resilient lifestyle (Davies, 2015). According to Berg (2017), STT are considered as a novel innovation, offering consumers the opportunity to reconnect with their bodies by presenting them as objects of metrics. Berg (2017) further argues that body metrics idealise an optimised and efficient lifestyle through STT's 'more-than-human' capacities in self-monitoring (Lupton & Maslen, 2018, p. 197). STT are perceived to help individuals to

take notice of the quantifiable dimensions of everyday lives that could implicate their health and fitness (Parviainen, 2016). Such health ideologies can be seen to be propagated in the marketplace. For example, the use of pregnancy and parenting mobile applications as part of self-tracking practices, especially those targeting new mothers and parents, place the women's bodies either as a site of risk that STT can help to mitigate or, a site of pleasure that STT can help to enhance (Thomas & Lupton, 2016). If STT are presenting the body as something "consumable" (Thomas & Lupton, 2016), self-tracking practices challenge the critique towards consumption in its contribution to wellbeing and happiness (Warde, 2017).

The regular use of STT transforms consumers' engagement with their devices because they produce 'active' data that can shape how individuals behave (Pink *et al.*, 2017a, p. 10). It is also argued that self-tracking practices as a form of digital prosumption produce certain values which in turn, governs them into producing a particular kind of data that can be repurposed by the developers (Charitsis, 2016). In the pursuit of optimum health and wellbeing, consumers' bodies become a display of subjectivity (Rose, 2001). Subjectivity is understood as the 'set of processes of subjectivation to which individuals have been subjected or that they have implemented with regard to themselves' (Foucault, 2017, p. 282). The process of subjectivation is not merely a classification of a particular action, or in this case, the individual's specific act of self-tracking practices, rather, subjectivity is a 'dimension of the individual, a permanent [relationship] of himself to himself' which is then internalised and projected to others (Foucault, 2017, p. 284).

Self-tracking practices produce new subjectivities of active, responsible, efficient, optimised and productive (Charitsis, 2016). Individuals who consider themselves as healthy objectify themselves as entrepreneurial projects; they observe self-regulations (Stragier *et al.*, 2016) and self-discipline to administer their bodies as a display of wellbeing (Denney, 2005; Lupton, 2013b, 2014a, 2015a). The notion of discipline is an imperative mechanism in the engagement with STT (Charitsis *et al.*, 2019; Lupton, 2013c, 2017) but existing studies on STT have mainly focused on the subjectivity of control, resistance and exploitation. From the literature, we observe that self-awareness, self-optimisation and self-improvement are some of the important behaviours in practising self-tracking, yet little is known about how these behaviours are mediated through STT. According to Foucault (1988, p. 18), human beings are conditioned to 'transform themselves' to achieve happiness in life and 'self-knowledge' becomes a prerequisite; individuals must get to know themselves first before taking care of their selves

and bodies. In this respect, our enquiry is aligned with Foucault's analysis of the body and [self] discipline as we aim to expand the literature on how the body is being performed through STT. For Foucault (1977, p. 102), discipline is the 'submission of bodies through control of ideas'. As for self-discipline, it describes how individuals are transformed into enterprising subjects who strive towards self-improvement (Bardon & Josserand, 2018; Covaleski *et al.*, 1998; Warde, 1997).

3. A Foucauldian perspective to STT

Theoretically, to understand how individuals might use STT to monitor their bodies in everyday life, we adopt a Foucauldian perspective on self-surveillance. Such a perspective, which characterised the later stage of Foucault's work, the ethical turn, is centred on the idea that the individual willingly embraces the formation of the self without any coercive surveillance. Whilst neoliberalism credits individuals for their voluntary compliance to surveillance and their freedom to choose, this state of neoliberalism is not to be confused with emancipation, but rather a sense of self-actualisation where individuals are cultivated as autonomous, productive and self-regulated (Lupton, 2013b). As Foucault pointed out, the formation of the self does not mean that the individual constructs himself in a neoliberal fashion via individual 'free' choices, but rather, it means that there are 'models that he [the individual] finds in his culture and are proposed, suggested, imposed upon himself by his culture, his society, and his social group' (Foucault, 1997, p. 291).

The Foucauldian perspective on self-surveillance helps us to unpack how individuals self-monitor their bodies in their everyday life. In particular, we use Foucault's schema for unpacking the intentional work that people do to themselves in setting up and then following moral principles controlling their bodies. As he argues, individuals first identify aspects of their selves, which are considered morally problematic, and those aspects then become objects of reflection (ontology). This first stage is then followed by the deontology phase in which individuals establish a moral code for themselves and act accordingly. Individuals then establish some practices of self-discipline, which are also called "technologies of the self", in which individuals become ethical agents. It is with these practices of self-discipline that individuals seek to achieve an ideal status, which is also called teleology.

3.1 Ontology: objects of reflection

When Foucault (1997, p. 254) speaks of individuals as ethical agents, he refers ethics as an 'aesthetic' concern, in which individuals hold the 'will to live a beautiful life' by applying certain values, reproducing certain examples and depicting a virtuosity in their lives. This "ethics" revolve around the notion of care of the self (Barker, 1998). In order to care for the self, individuals must engage with knowing the self (Foucault, 2011). This ontological enquiry puts individuals as 'objects of the quest' (Foucault, 1997, p. 231) and poses onto them the question of 'to what we do to ourselves' (Kelly, 2013, p. 512)? Following the principle of knowing oneself, the "self" becomes 'something to write about' with vigilance to nuances of everyday life, particularly to identify faults, temptations and desires (Barker, 1998, p. 79). In this schema, STT as a form of writing, albeit digital and automated, produces a kind of knowledge that concerns with the self and its activities. Like a 'mnemonic device', STT keep memories of what a body does for the individual's self-assessment that would then activate some moral codes for conduct (Foucault, 1997, p. 237).

3.2 Deontology: applying rules into practice

Following the individual's self-assessment and establishment of guiding principles as moral codes, individuals must go about their lives following these rules that should inform them on how to conduct themselves (Foucault, 1997). Through the practices of these moral codes that individuals become ethical agents, and in this ethical work that subjectivity is approached. For Foucault, ethics is the relationship one has with themselves that 'determines how the individual is supposed to constitute himself as a moral subject of his own actions' (Foucault, 1997, p. 263). Subjectivity, according to Foucault, is constituted 'in different forms at different times through the use of varied practices' (Kelly, 2013, p. 513). In this process of subjectivation, individuals create a relationship (or multiple relationships) with their moral codes by guiding all their actions towards these codes (Cappellini *et al.*, 2019), and these practices become techniques of care and the technologies of the self.

3.3. Teleology: constant monitoring

In the care of the self, self-discipline is conceived as a functioning power that one practices on oneself. As individuals take themselves as something to be cultivated, 'self-ownership or self-possession' becomes one of the consequences of such practice (Ransom, 1997, p. 140). It nudges the individuals to take an active role in caring for themselves through the routine of 'constant reporting and recording' (Ball & Olmedo, 2013, p. 91). The constant recording provides a 'recollection of errors committed in the day' and the measures for what has been

done and what should have been done (Foucault, 1997, p. 237). Indeed, the engagement with a tracking technology has shown the importance of constant monitoring or the feedback loop, in helping individuals manage their lifestyle or encouraging them to perform certain activities (Prince, 2014).

We use Foucault's schema of subjectivation to understand how individuals take their own bodies as objects of reflection and establish technologies of the self to achieve an ideal status. In the aim to theorise self-monitoring and self-discipline through the mediation of STT, we also look at the domestic sphere as a "context" to which self-tracking is constituted. We look into labour as part of the individual's physical activities in caring for the self, performed within the context of their domestic sphere (Molyneux, 1979) as a site of consumption (Shove, 2003). Even for Foucault, the care of the self requires time and a set of practices, thus implying labour. It is time filled with 'exercises, practical tasks, [and] various activities' (Foucault, 1986, p. 51). It is through these practices that individuals continue to constitute themselves as ethical agents, of which leads them towards achieving an ideal state of being.

4. Methods

This research builds on an interpretive ethnographic enquiry (Fotopoulou & O'Riordan, 2017; Lupton *et al.*, 2018) that looks into self-tracking practices amongst individuals of contemporary Britain. Consistent with other studies on STT (e.g. Pink and Fors, 2017; Pink *et al.*, 2017b), ethnography was selected to provide a rich understanding of how consumers engage with STT in their everyday lives. The first author conducted the fieldwork consisting of participant observations and semi-structured interviews with photo-elicitation techniques. Before the fieldwork began, ethical approval was granted by the authors' institution. During the phase of recruitment, participants were informed of the aims and scope of the research and with their permissions, interviews were recorded and pictures were taken. Interviews were anonymised; pseudonyms are used in this paper.

Other than convenience in accessibility, we chose London as the enveloping environment to study self-tracking practices as it comprises of unique individuals who reflect contemporary Britain. The geographical setting offers some homogeneity to our sample but demographically, participants' profiles are heterogenous (see Table 1). Three criteria were used to select participants: participants are i) consumers of STT; ii) using at least one device to shape their

daily activities, such as commuting and cleaning the house; and iii) motivated by hedonic interests. Participants did not disclose any illnesses, nor identified themselves as being vulnerable or at risk of any illnesses. Motivations for engaging in self-tracking practices were for wellbeing, fitness and a healthier lifestyle (Davies, 2015). Selection of research informants are representative of self-tracking behaviour (O'Reilly, 2009). Consistent with other qualitative research on self-tracking (Charitsis, 2018 and Pink & Fors, 2017), twenty participants were recruited to participate in the study. A snowball sampling strategy was used to recruit participants (O'Reilly, 2009). Snowball sampling allowed individuals to recommend others they deemed suitable for the study (Lincoln & Guba, 1985). Entry to fieldwork is critical to an ethnographic study and a recommendation from consumers themselves improves the capacity of the author to perform data collection as well as the quality of the data (Fetterman, 2010). Our sample is largely middle-class with a good level of education (Level 6 to 8 qualifications). Participants include ten women and ten men from three ethnic groups (White, Asian and African) aged between 24 and 62 years old. Twelve participants have engaged with more than one STT and in general, were experienced consumers of STT (only four had less than one year of experience with STT at the time of recruitment).

[PLEASE INSERT TABLE 1 HERE]

A summary of data collection is included in Table 2. Participants were largely interviewed twice and observed up to seven times between the two interviews. The first semi-structured interview was framed as an ice-breaking session to establish rapport (Arnould & Cayla, 2015; Denzin & Lincoln, 2005). We also explored participants' perceptions towards their bodies, health, fitness and motivations for self-tracking practices. Self-tracking goals, motivations and daily routines around the consumption of STT were also investigated. Example of questions include: "What does a typical day look like for you?" and "What motivates you into getting a Fitbit?". The follow-up interviews are were scheduled after the observations to clarify and explore some of the data from participant observations (Pink & Fors, 2017). These were largely conducted via Skype due to the Covid-19 pandemic. Example of questions during the follow-up interview include: "How did you feel about that day when you walked to Tower Bridge?" and "How do you keep yourself motivated to perform your self-tracking routine?". In addition, participants were observed over a period of six months in different settings and places, depending on the activities that form their self-tracking practices. For example, we looked at how individuals perform technologies of the self at home, work and in social settings to gain

an immersive understanding of the different elements of everyday self-tracking. Activities observed include exercising, commuting, taking breaks or off days, going to the park, running errands, shopping, gardening and performing house chores. In doing so, we analyse how individuals interact with STT whilst performing these mundane practices by observing the manifestations of self-discipline, the changes and reactions from engaging with the technology and the meanings they attach to these practices.

As part of the observations, walking interviews were conducted as they are useful for exploring topics while "moving" with participants and thus generating informal discussions prompted by the external environment (Fincham *et al.*, 2010; Jones *et al.*, 2008). For example, walking and talking with participants have allowed us to gain a deeper understanding of how individuals decide what tasks to perform, in what way and order. Participants share meanings behind their behaviours including the sequence of errands, or major landmarks along walking routes that are otherwise difficult to elicit during face-to-face interviews. As we are interested in the experiences and the nuances of interactions between individuals and STT, we paid close attention to the unsolicited and solicited interactions of their everyday lives, the material goods or props involved with their practices and the different contexts of self-tracking practices (Hammersley & Atkinson, 2007). Data collection from participant observations is recorded through audio-recordings and fieldnotes. Fieldnotes taken by the first author in form of notes, pictures, maps of the walks and itineraries which were undertaken with participants and participants' to-do list and timetable were collected. We discuss specific aspects of self-tracking as identified during the observations to gain further understanding of participants' actions as well as reflecting on the meanings of their experiences.

[PLEASE INSERT TABLE 2 HERE]

The final data set consists of around 1,400 minutes of recorded interviews and 180 hours of participant observation. With participants' consent, interviews were audio-recorded via a mobile phone and transcribed and analysed thematically. We benefitted from the use of a mobile phone to minute details of observation and to map out the observations through short videos and photos (Gorm & Shklovski, 2019; Schensul *et al.,* 1999). Following Hammersley & Atkinson (2007), data analysis was iterative during the course of the fieldwork. Following Braun & Clarke (2006), data were analysed thematically and the literature on self-surveillance was consulted to interpret emerging themes. First, we familiarised ourselves with the data

before creating initial descriptive codes. Emerging themes were then identified; we moved between the data and literature to further refine our findings. As we attempt to make sense of the ideologies of self-tracking with the actual actions underpinning their practices, we assemble the data from interviews and observations to identify different types of activities involved in self-tracking and the characteristics and consequences of participants' actions during their daily routines. We classify these themes into a new typology to articulate the different forms of subjectivities and approach these typologies as a continuum. To ensure rigour, validity and credibility of our research, we adhere to the principles of crystalisation (Creswell, 2007). Reflexive field notes taken before and after the interviews were triangulated with the audio recordings and observations (Miles & Huberman, 1994).

5. Findings

Our findings reveal conflicting accounts of how individuals set up and follow moral principles in disciplining their bodies and caring for the self. We present two sets of dichotomies as the ontological phase of technologies of the self where individuals establish moral codes to guide their behaviour: "health and indulgence" and "labour and leisure". Our findings also highlight the emergence of subjectivities, as manifestations of self-discipline through contrasting sets of practices. These are "redemptive self", "awardee", "loyal" and "innovator". We further argue that the construct of a self-tracker is a mix and match of several dichotomies.

5.1 Tracking the body between health and indulgence: an ontological quest of the self
Inspired by Warde's (1997) research, we conceptualise the work of self-discipline as a juxtaposition between health and indulgence in the practices of self-tracking. We look beyond food consumption (Kent, 2020) as self-tracking routine is entangled with other everyday behaviours (Spotswood *et al.,* 2020). Although contemporary self-tracking is framed as hedonic experience (Parviainen, 2016; Schüll, 2016), self-tracking requires work that is inherently paradoxical to self-indulging. Through the mediation of the Apple watch, Jenson (40, Advertising Director and runner) orients his daily commute as part of his recorded physical exercises. It is a 'general rule' that travel is performed in ways that conform with self-quantification goals. Echoing Bakardjieva & Gaden (2012, p. 405), our participants position self-tracking goals as an 'authority' to which they orient their everyday practices.

Self-knowledge has been discussed as an important dimension to self-tracking (Lupton, 2016a). Johnny (62, Managing Director and Samsung watch user) performs self-discipline by journaling his food consumption on the health app. Naomi (30, Lecturer, runner and Fitbit wristband user) adds more nuanced self-discipline by tracking calories from every ingredient in her food onto her Fitbit. Self-trackers continually learn about healthy behaviour through the recorded numbers and become more reflexive through STT. Our participants juxtapose a strict self-tracking routine on weekdays with leniency on weekends. This contrast is internalised through the narrative of balancing health and indulgence as a 'trade-off', which is framed as techniques of self-discipline rather than deviations.

Warde (1997, p. 91) argues that '[s]elf discipline is only required if people are inclined, encouraged, or tempted to break rules'. This is indeed the case of many participants admitting that self-discipline might not always work. Indulgence, typically food-related, is framed as treats through the concept of cheat day (Kent, 2020). We identify indulgence as a deliberate or spontaneous interruption of health regime in self-tracking practices. Holiday or carefree spirits (see: Jochemczyk *et al.*, 2017) could stimulate impulsivity in suspending individuals' work of self-discipline which challenges the notion of stable behavioural changes with which STT is associated.

> George: We try to do that obviously, but we don't always do that especially when we're going on a holiday. We just do whatever we want. (29, PhD student, runner and Garmin user)

> Miki: […] but sometimes, it's like whatever–life is too short. (40, entrepreneur and Apple watch user)

As choosing subjects, personal choices become determinant to their own well-being (Lupton, 2016b; Rose, 2001). As responsible subjects (Charitsis, 2018), self-trackers are constituted through a particular set of norms under the surveillance of STT, thus (re)producing manifestations of self-discipline. Through the dichotomy of health and indulgence, a redemptive self and awardee emerge.

5.1.1 The self under scrutiny: a redemptive self

Our findings confirm the notions of self-responsibility (Lupton, 2014b) and anxiety (Davies, 2015) that operate in self-tracking. Marta (29, PhD student and Fitbit user) expresses her fears

of unfulfilled self-tracking practices as 'double-guilt' and 'vicious cycle'. We suggest that a responsible self-tracker tends to critically scrutinise the self as a further work of discipline, producing the redemptive self. We conceptualise redemptive self as those who prescribe consequences as punishments to regain control over deviations in self-tracking.

> Marta: After eating cakes and pastries, I just feel very guilty. I just feel very, very guilty after having it. Very, very, very, very guilty. I mean, in my mind, tomorrow I have to go for a run to burn this up. Of course, the body doesn't work like that, but in my mind, psychologically, something is going "You have to go for a walk tomorrow, run 10k or you have to do something".

When self-trackers navigate between health and indulgence and find themselves in the latter, practices of 'critique' arise (Ball & Olmedo, 2013, p. 87). Thus we argue that individuals are not fatigued from making "good" decisions as they are not merely 'nudgeable' nor 'passive-choosing' subjects (Schüll, 2016, p. 12). Rather, individuals are capable of exercising self-discipline by finding other ways to redeem themselves through quantifiable activities. This shows how self-surveillance alone does not guarantee continuous health-related behaviour but self-surveillance encouraging encourages critical self-observation through 'models' by which individuals are surrounded (Foucault, 1997, p. 291). The 10,000 step-goal dominates self-tracking practices and has been normalised as the minimum threshold in practising a healthy body. Thus, underachievement invites further scrutiny towards the self by attributing undesired behavioural traits like inefficiency or laziness. A redemptive self does not justify unsatisfactory self-tracking numbers, yet does not go as far as inciting 'self-hatred' (Lupton, 2013a).

> Sarah: With this, it's like "the steps are depressing". Looking at the steps like "6,000?" at 3 o'clock with 6,000 is something like…hmm, not right for me. (28, mother and Samsung watch user)

> Jamie: If I don't do the 10k at home, I just feel like "Oh my God. You're just slacking". (32, PhD student and Samsung Health app user)

STT reinforce autonomy as individuals become vigilant towards their behaviours by scrutinising and punishing the self. Behaviours are represented and criticised through STT's quantitative measurements. Meanings are negotiated (Pantzar & Ruckenstein, 2017) over time as self-tracking becomes increasingly individualised in their structures of routine. Therefore, STT position the body as objects of reflection to affirm individuals' capabilities in practising

self-discipline. Individuals review their performance (Foucault, 1997) through the mnemonic technology by learning their bodies' performance, capabilities and potentials; ultimately, encouraging individuals to respond to the numbers made conspicuous by STT. The underachievement of self-tracking numbers signifies poor self-discipline amongst the redemptive self, which warrants punishment and redemption including self-deprivation of indulgences (e.g. 'Friday drinks'). It demands further physical work (e.g. running, walking, grocery shopping and commuting) aimed to restore balance and control over deviations.

However, punishing is not the only response to deviations in self-discipline. Damon (41, Head of IT Security and Xiaomi user) and Miki (41, entrepreneur and Apple watch user) are exceptions in our findings. As subscribers of Vitality (health insurance programme through STT), their goals are entangled with the governance of Vitality's merit system. It is inadequate to present their accounts of punishment as their own (Damon: 'If I don't get my 160 points a month, then I'll end up having to pay my Amazon Prime!') as there are other forms of governance in their self-tracking practices (Catlaw & Sandberg, 2018). Nevertheless, from the lens of self-discipline, we suggest that when individuals' moral codes are bundled with formal structures like Vitality, the work of self-discipline is more drawn towards achieving rewards and actively avoiding 'the stick part of the carrot and stick' (Damon), as punishment is more material rather than moral.

5.1.2   Rewarding the self: an awardee

Our findings echo identical sentiment towards self-rewarding; it is a common self-tracking behaviour that stimulates motivation (Bandura, 2005; Maltseva & Lutz, 2018; Stragier *et al.*, 2016) and is used to measure effectiveness (Shin & Biocca, 2017; Stiglbauer *et al.*, 2019), yet have so far remained under-researched. Beyond the digital gains such as badges and trophies, our findings also reveal how self-reward is materialised, thus producing a particular subjectivity that rewards the self. An awardee would observe leniency as a way to reward their work of self-control and compliance with ethical codes as evidenced by STT. Leniency includes consuming food that is 'culturally coded as 'unhealthy', 'bad' or 'junk'' (Lupton, 2020, p. 36) like alcoholic beverages, pizzas and cakes. It is interesting to note that such a narrative is 'devoid of punishment' (Lupton, 2020, p. 41).

> Lewis: I love Ben & Jerry's ice cream. […] I just eat the whole tub and "that's it! no more". (37, Auditor and Fitbit user)

David: Oh, I am a pig about ice-creams. I don't drink, anymore. Don't smoke. I've never had drugs, but, ice-cream. (32, PhD student and Fitbit user)

David's association of ice-cream with alcohol, cigarettes and drugs suggests a particular view towards the severity of indulging ice-cream in a way that one might lose control. Rewards often violate individuals' moral codes yet here, are free from guilt or worry. Such a transgressive pleasure is not inferior to the practices of the self as it is pre-conditioned by their moral codes and pre-allocated according to their due diligence. Instead of framing them as cheat days, individuals allow deviation as a form of self-reward. The materialisation of rewards is manifested through allowances of interruption. Paradoxically, self-trackers enjoy "day off" from their moral codes and self-tracking as a way to remain engaged in self-management and self-discipline in the long run.

Sarah: I'll choose one day that I will take a break. […] Sunday is usually my lazy day. On the weekend, there must be one day that I'm not moving. […] So, I take a day off. […] And, I don't make an effort to go out. […] But I have to have this lazy day for me to roll over the week cos I think I push a bit on the weekdays.

We suggest the importance of understanding the circumstances which bind self-trackers with the technology and their telos (Catlaw & Sandberg, 2018) to appreciate how rewards are shaped. Achieving 10,000 steps holds meaning beyond practising a healthy and active body. For Sarah and Jamie (both mothers), STT is evidencing daily routines, every physical movement, dietary and lifestyle choice, thus making practices such as mothering visible through numbers too. These illustrative examples demonstrate how a redemptive self or an awardee might consume success and failure in self-tracking practices differently. Self-trackers who display competitiveness and anxiety as motivation are more inclined to be self-scrutinising towards shortcomings in the care of the self. Whilst others who position their practices as opportunities to enrich their lives (Catlaw & Sandberg, 2018) are more inclined to be self-rewarding.

5.2 Quantifying labour versus leisure: an orientation of ethical work

Individuals embark on an ethical journey to achieve what Foucault calls the aesthetic of existence, where individuals transform themselves as self-managing subjects (Covaleski *et al.*, 1998). The adoption of STT is driven by the perceived behavioural control with which such a

technology is associated. Therefore, the question we must unpack in these instances is: how has engagement with STT affected their self-care regime in the way they perceive and enact them? Here, the dichotomy of "labour" and "leisure" emerged from the routinised self-tracking behaviour that shapes their everyday lives (Warde, 2005). We refer "labour" to practices of self-tracking that require some groundwork. For Jamie and Sarah, careful use of time is the main guiding principle in how routine is organised. Self-tracking as a way of recording and memorialising behaviour produces digital accountability (Righi, 1997), thus informing a particular way of performing activities worth recording. As a result, other technologies such as stairs or escalators become important material objects in self-tracking. Lewis' commute to work 'guarantees rewards' and 'bonuses' as he transforms these technologies from utilitarian to hedonic gains in ways that contradict convenience:

> Lewis: I tend to walk because we are on the ninth floor and the building is 15 floors, […] I could easily do 50 to 75 flights of stairs.

Individuals perform intentional work in the interest to transform mundane routine as meaningful work of self-discipline. Sarah's illustrative example also demonstrates how house chores and domestic space become technologies of the self through STT:

> Sarah: my activities really depend on how I progress in the morning. […] if I stay at home from morning to 3pm, before the pick-up time, if I want to reach 10,000 by then, I have to vacuum the house, I have to do all the big chores, meaning I have to do all out. Which is cleaning the toilet, vacuum, wipe the windows, wipe everything.

On the other hand, we also identify workarounds in self-tracking as leisure. Individuals' spontaneous interactions are important in shaping up self-tracking practices. Leisure in self-tracking is not a form of resistance to STT nor indulgence but rather, a particular reflexive thinking that evokes creativity in self-tracking. The difference between indulgence and leisure is clear; the latter is predominantly unplanned suspension of self-discipline often free from guilt or anxiety. Individuals are open-minded in the way they achieve self-tracking goals. On one hand, leisure suggests that self-tracking practices can be dishonest yet valid. On the other hand, leisure might be compatible with healthy behaviour too:

> Jenson: I'm about to go to bed and then, I do some star jumps in the bedroom to get to the finishing line.

The orientation of labour and leisure in self-tracking is observed when self-trackers make modifications to how they perform their everyday tasks according to their moral codes. As the strategy of self-governing places self-trackers at the borders between making morally-responsible and rational choices (Lemke, 2002), individuals are also placed in a 'set of processes of subjectivation to which individuals have been subjected or that they have implemented with regard to themselves' (Foucault, 2017, p. 282). Between the dichotomy of labour and leisure, we identify two emerging subjectivities: the loyal self and innovator.

5.2.1 Playing by the rules: a loyal self

The loyal self emerged through labour. Our findings present a parallel to 'ultra-subjectivation' as individuals perform techniques of self-discipline beyond their limits (Catlaw & Sandberg, 2018, p. 8). A loyal self conforms with their narratives of moral codes coherently (Pitts, 2003, p. 86) and thrives to experience self-tracking practices in its completeness. A rigid perspective towards moral codes in self-tracking is fundamental to loyal self-trackers. According to Foucault, the way to care for the self is threefold: living in deprivation of luxuries, thorough self-examination and constant control (Whitson, 2015, p. 533). Here, Marta fulfils these principles:

> Marta: Like even if I'm genuinely tired, I've been on my feet all day, physically have been tired and I haven't eaten anything, if someone tells me, you want to go for a walk by the river, I'll be up for it. Like I always like to be up on my feet to do something, you know, some form of physical activity, whether it's a walk or anything.

Marta's adamant rule regarding commuting by foot demonstrates the notion of self-control in abstaining from the luxury of transportation. Similarly, Jamie recalls her decision to let go of her car to combat laziness and complacency. Jamie's decision to lead a car-free life has enabled more physical work that complements her moral codes in self-tracking. The work of self-discipline requires self-control and commitment, which is embedded in the state of readiness and willingness to perform activities that are worth tracking. Here, it is also interesting to capture movements that are not considered as part of the technologies of the self for loyal self-trackers:

> Marta: Even when you're just walking from here to the loo, I don't count that as steps. For me, those are not steps. Steps is walking to the train station or walking to the park.

Those are actual steps for me but standing in the kitchen and cooking or walking from one place to the other, doesn't count as exercise. Those steps [are] in addition to the actual exercise that I'm doing.

Some self-trackers hold a strong 'loyalty to the practice' (Spotswood *et al.*, 2020) by applying moral codes rigidly, even if it demands hard work. Engagement with self-tracking is underpinned by a commitment to create and protect a particular version of their self-tracking data (Spotswood *et al.*, 2020). Jenson portrays a managerial role as the loyal self:

Jenson: I do my utmost on most days to make sure I've exceeded those [goals].

The loyal self actively shapes their practices in ways that are deemed valid for the sake of protecting their moral codes, practices and telos in self-tracking. STT are not only a tool that tracks but also one from which individuals seek advice. STT are trusted 'advisor' for self-trackers like George, David and Damon where the technology informs them when they need to rest. This rest is not framed as an indulgence but rather an important practice to care for a healthy body. George interacts with the technology in planning his daily schedule:

George: [STT] are increasingly adding, giving you more data to work with, and therefore adding more nuance to how you train and how you recover. […] my watch has said […] that I need two days off and now I should probably leave it to two days before I go for another run. I haven't thought about this, but it has become more integral to how I plan aspect of my life.

5.2.2 Mending the rules: an innovator

Self-tracking is seen as tiresome thus displaces the practices of self-discipline with the tendency to withdraw or deviate from their moral codes (Lupton, 2013a). Here, we suggest that the practices of leisure form another subjectivity, the innovator. We conceptualise the innovator as someone playful with their practices by mending the rules. Jessica's (29, PhD student and Fitbit user) narrative demonstrates how self-discipline requires flexibility for it to be effective:

Jessica: think the best way to exercise is to do stuff without it being labelled exercises. So, like on the henna-do this weekend, we're doing that inflatable thing. That's going to be like tons of exercise and then we do like a treasure hunt around the area. So, it's going to be loads of walking and stuff.

Although the literature discusses a pleasurable or playful mode of self-tracking, it is largely regarded as a manifestation of personal and voluntary endeavours with an emphasis on underlying reasons or telos (see Lupton, 2016a). In our case, we extend such domain of self-tracking with examples of how innovators integrate the technology in their everyday lives. For Jessica, manipulating the scope of exercising is an important aspect of engaging with self-tracking as it breaks down the struggles of self-discipline (Catlaw & Sandberg, 2018). As illustrated in Damon's quote below, an innovator might also seek a detour, as they reconfigure their practices based on numbers rather than their physical sensations (Lupton, 2013a).

> Damon: I'm already at 21 points now, I actually just need three points todays. So, […] so if I can get 3 points today, which means 7,000 steps and just need to walk just another 5,300 or I can go out and do a ride.

6. Discussions and implications

In applying a Foucauldian perspective to STT, this study advances current knowledge of how and why consumers engage with STT (see Lupton, 2014b, 2015a). As Foucault (1986, p. 101) argues, it is our innate desire to seek the correct regimen of life through a 'helpful discourse', one from which individuals can learn and reflect on regularly through self-monitoring. Self-tracking is a form of self-monitoring which encourages individuals to practice self-responsibility as a strategy to govern the self (Cohen *et al.*, 2010; Lupton, 2014b) beyond the fixtures of hospitals and clinics (Petrakaki *et al.,* 2018), thus positions the body as an object in need of intervention (Till, 2014). Previous studies have shown that consumers' interaction with technologies produces several consumer subjectivities (e.g. Charitsis, 2018; Lupton, 2012). Our study presents a processual understanding of how subjectivities emerge and evolve.

[PLEASE INSERT TABLE 3 HERE]

Table 3 represents two sets of dichotomies emerging from individuals' moral codes (ontology) and practices of self-discipline (deontology) as the different modes of subjectivation in self-tracking. Although our analysis hitherto presents a division that exists in self-tracking, we suggest that these typologies should not be treated in silo. Effectively, these dichotomies and subjectivities are interconnected due to the continuous state of self-tracking. This framework

adds a pivot to understanding consumer engagement with STT as we move away from the singularity in the propensity of self-tracking.

The process begins with ontologically shaped goals, which guide individuals as moral codes. These moral codes are internalised through STT as they frame individuals' practices by generating certain data, conceptualised as dichotomies in this study. In the process, individuals learn new ways of (re)inventing practices and (re)negotiating meanings that they attach to self-tracking data. The increasing visibility of bodily metrics heightens the credibility and objectivity of self-tracking data (see En and Pöll, 2016; Pantzar and Ruckenstein, 2017). Indeed, these numbers on STT produce new ways of understanding the body and their behaviours, thus placing individuals in a continuous process of subjectivation. We hitherto capture four identities of self-trackers as subjectivities (redemptive, awardee, loyal and innovator) as the outcome of interacting with STT within the construct of two dichotomies (as shown in Figure 1). Our analysis demonstrates another layer to the engagement of STT in terms of practices and relationships that individuals establish with the self and ultimately, subjectivities.

[PLEASE INSERT FIGURE 1 HERE]

As individuals become increasingly aware of the hidden patterns and modes of behaviour through STT, the constant interaction with such technology allows them to solve gaps in their daily routines, thus placing the individuals in a state of 'enterprising' (Beckett & Nayak, 2008, p. 311). However, the issue we face here is a limitation in understanding the different modes of enterprising amongst users of STT. Individuals engage with the technology to produce tracking data differently. We suggest that these subjectivities are not definitive because interactions with STT are continuous. The constant interaction creates a continual reconfiguration of self-trackers as ethical agents thus challenge the static view inherent in current typologies in self-tracking. The existing categorisation of self-trackers often segregate individuals from one distinct group to another.

As self-formation concerns with the kind of subject these individuals become (Foucault, 1986), we expand the construct of the self as a process of mix and match of different dichotomies and subjectivities, as a result from STT's constant monitoring. Our findings align with Askegaard, *et al.'s* (2005) notion of 'oscillating pendulum' where individuals move from one side of each

dichotomy to another. The way individuals interact with STT and how the technology informs their behaviour is not always stable and sometimes interrupted. Rather, individuals move between dichotomies depending on the context and situation. For example, Miki was observed without her Apple watch as she had deliberately asked her eldest son to wear it to school. Although she seemed quite open-minded being dishonest with her self-tracking data, she would constantly check her Apple phone as she became uneasy with her deviance. This signifies a shift from being an innovator who is flexible with codes of conduct to a redemptive self who then tries to regain control over the situation. Miki swung between these two positions as she found herself conflicted with her own behaviour. Even though Miki identifies such displacement from her moral codes at the beginning, she remains gravitated towards her ethical self-formation. This signifies how the act of deviance does not equate to total disengagement. Such a dichotomy reveals both a conflict in motion and a harmonic pendulum swing in self-tracking. As individuals move from one end of the continuum to the other, another subjectivity emerges but one that embodies elements from both positions of the dichotomy. In this process, individuals stride towards achieving an ideal status (teleology) which we conceptualise as hybrid subjectivities: "honest" and "savvy" self-trackers.

Honest self-tracker refers to individuals who are virtuous and truthful in their interaction with STT. They engage with "labour" in their self-tracking practices yet remain sincere in crossing the borders between health and indulgence. They are self-rewarding towards successful compliance of STT in their care of the self, yet at the same time, become self-scrutinising when self-discipline is unsuccessful. Honest self-trackers position the process of data creation via STT as a respectable work of self-discipline and thus, maintain truthful conduct of the care of the self. Honest self-trackers are fundamentally loyal in maintaining boundaries between the extremes of each dichotomy and are both redemptive as well as an awardee. Savvy self-trackers are also both redemptive and awardee yet remain pragmatic in the way they produce and consume self-tracking data. Savvy self-trackers have 'a split in identity' (Askegaard *et al.*, 2005, p. 167) as they remain loyal to their self-tracking goals, yet may periodically take risks in mending their rules. This makes the boundaries between the dichotomies blurry and fluid for savvy self-trackers as they are largely innovators. Individuals use their technical knowledge and competence in self-tracking practices to manipulate the production of self-tracking data. These dichotomies do not necessarily produce a polarising subject. In fact, our paper challenges existing typologies of self-trackers as fictional characters who lack nuance and complexity.

Our findings enrich current debates on consumer interactions with new and emerging technologies. On a theoretical level, a Foucauldian lens of self-discipline and technologies of the self allows us to explore the ways in which individuals build relationships with themselves through the mediation of self-tracking technologies. In its contemporary context, hedonic self-tracking practices are presented as something enjoyable yet demanding in effort, thus producing different fashions in the care of the self that is not simply universal. Our Foucauldian perspective on self-tracking practices has enabled us to rethink the movements of self-trackers, either in obedience of their own moral codes or deviance. The formation of the self is not absolute for as long as the engagement with such a technology is in motion. The practices within or across these dichotomies, presented as moral codes and objects of reflection whether health or indulgence, labour or leisure, not only create multiple subjectivities but also a continual process of reconfiguration of the self in achieving teleology in self-tracking practices. In this respect, individuals' movements between contrasting principles in self-tracking do not invalidate their engagement with self-tracking. In fact, it is cumulatively enriching the experiences of disciplining the body in an honest or savvy way.

Additionally, our ethnographic enquiry offers a promising view of how self-discipline is mobilised in individuals' daily movements. We address the lack of immersive research on STT by providing data in situ. Our findings suggest that through the mediation of STT, the self-tracked body is viewed as a site of dichotomies and self-tracking provides a way to contest self-discipline in the constantly shifting modes of practices. Such a perspective moves away from defining a consensus view of health, indulgence, labour, or leisure and instead, unpacks the cultural and social models of self-formation in Foucauldian principles. Collectively, this study challenges the binary perspective towards self-tracking by rethinking the circumstances that govern consumers' practices in abstaining, indulging, rewarding, or punishing themselves in producing these self-tracking subjectivities.

6.1 Practicial implications

Overall, this ethnographic study contributes to the growing interest in understanding self-tracking, a behaviour intimately weaved into the norms of everyday life. With the increasing concerns about exploitation, the political and social control in self-tracking, our research illustrates how STT are instrumental for consumers to gain social rewards performing everyday mundane practices. Our findings demonstrate how consumers are able to exercise control and, to some extent, "exploit" the technology for their own gains. The new typologies introduced in

this paper invite further research on rethinking consumer segmentations in this digital consumption phenomenon. Consumer segmentations should not always be treated as distinctly separated or fixated into clusters based on, for example, motivations (see 'avid', 'social' and 'achiever' self-trackers in De Maeyer & Markopoulos, 2018). As our findings reveal, even though practices are coherent as a whole, they are not reductively compartmentalised. Rather, consumer practices are increasingly hybrid and non-monolithic. In addition, our findings reposition mundane everyday activities as important for self-trackers to perform self-discipline. The ability to constantly monitor the body reframes self-tracking practices beyond the structures of particular physical activities within the premises of parks, running tracks or the gym. The intervention of STT in everyday life has invented new opportunities for technologies of the self, especially for those who struggle with the limitations of performing physical activities at the gym. Our findings are beneficial for STT marketers seeking to better understand consumers' heterogenous way of performing self-tracking practices. An insider's look in consumers' routines provides an appreciation of how routine forms a structure for consumption behaviour. Further, paradoxes found in our study provide a non-linear perspective on how consumers could benefit from STT in their pursuit of a healthier and more active lifestyle.

6.2 Limitations and future research

Our study entails some limitations. First, we focus on a specific set of practices that are observable and therefore may overlook other elements of everyday routine that overlap with self-tracking practices. Whilst we acknowledge that the integration of STT in everyday lives signifies how self-surveillance in new technologies alike is mobilising reflexivity amongst individuals, our argument centres around the ambivalence expressed in the modes of subjectivations. Our analysis does not engage in the macro dimensions of the social, political and economic structures that provide an institutional configuration in how these individuals would interact with new technologies. Despite these limitations in our study, we hope that our contributions provide a better understanding of consumers' subjectivities in self-tracking phenomenon. Looking ahead, we invite future research to rethink compliance and deviance in self-tracking as important aspects of self-formation in the care of the self. Moreover, future research should also consider applying longitudinal design to observe changes in self-tracking practices and how consumers' subjectivities are re-constructed over a longer period of time.

7. Conclusion

In this study, we show that subjectivities are processual rather than static, as self-formation remains continuous through STT's constant self-surveillance and individuals' self-reflexivity. The manifestation of self-discipline in existing typologies should be approached more fluidly, drawing on the notion of swinging pendulum (Askegaard *et al.*, 2005). There is not a singular principle guiding the creation of subjectivity in self-tracking but multiple principles, modes of practices and subjectivities emerging from different sides of these dichotomies. Behaviours and practices often overlap with contrasting principles. Yet, the self-tracker remains engaged with self-tracking practices, albeit one with a mixture of ethical substances. In this way, we problematise the 'avid self-tracker' as someone 'completely engaged and immersed with self-tracking' (Maslakovic, 2018, p. 259). Engaged self-trackers are not free from imperfections. As our findings indicate, despite the desire and enthusiasm in their engagement with STT, individuals also display tendencies to experience moments of deviance and failures. As self-discipline demands great effort, the boundaries between each dichotomy represent both the moral codes to which individuals orient their behaviours and the struggles that accompany them. In this way, our work advances Catlaw and Sandberg's (2018) study by unpacking the nuances and subtlety in these self-imposed boundaries in the pursuit of contemporary self-tracking goals.

Overall, our study shows that engagement with STT expands ways in which the body is conceptualised, acted upon and cared for. STT act as an enabler to bridge the gap between the ideologies of self-tracking with the realities of everyday routine. Individuals perform necessary and intentional work of self-discipline, albeit in a personal and flexible way, transforming mundane behaviours into meaningful production of self-tracking data. Our research question concerning the emergence of subjectivities from consumer interaction and engagement with STT was addressed through individuals' 'emotional work and moral commitment' as well as the 'mental work' in self-tracking practices (Lynch, 2007, p. 557). Interactions with the SST are observed through individuals' paradoxical modifications and manipulations of behaviour.

Table 1: Profile of Participants

No.	Name[a]	Occupation	Age	Gender	Brand of STT (current)	No. of Device(s) used so far	Used STT from	Ethnic Background
1	Lewis	Health and safety Auditor, logistics company	37	M	Fitbit	3	2017	Asian
2	Sarah	Stay-at-home mother	38	F	Samsung	2	2017	Asian
3	Megan	Admin Executive, academia	26	F	Apple	2	2017	White
4	George	PhD Student	29	M	Garmin	3	2017	White
5	Jenson	Director, advertising agency	40	M	Apple	2	2015	White
6	Jessica	PhD Student	29	F	Fitbit	2	2018	White
7	Karun	Shipping Officer, logistics companyA	38	M	Apple	1	2018	Asian
8	Marta	PhD Student	29	F	Fitbit	1	2019	Asian
9	Miki	Stay-at-home mother and e-commerce entrepreneur	40	F	Apple	1	2019	Asian
10	Johnny	Managing Director, logistics company	62	M	Samsung	2	2017	White
11	Damon	Head of IT Security, banking	41	M	Xiaomi	3-4	2017	Asian
12	Naomi	PhD Student	30	F	Fitbit	1	2019	Asian
13	Chloe	Executive, advertising agency	32	F	Apple	1	2015	White
14	Nigel	Consultant, academia	60	M	Fitbit	2	2015	White
15	David	PhD Student	32	M	Fitbit	3	2015	White
16	Alex	IT Analyst, fashion company	29	M	Fitbit	1	2018	Asian
17	Lando	Executive, advertising agency	24	M	Fitbit	1	2019	White
18	Jamie	PhD Student	32	F	Samsung	2	2015	African
19	Esmee	Executive, advertising agency	36	F	No brand	1	2018	Asian
20	Emma	Executive, property agency	29	F	Samsung	2	2016	Asian

[a] pseudo names are used.

Table 2: Summary of data collection

Method	Location(s)	Average Time	Number of sessions	Duration
First semi-structured interview	Café, office, home	47.5 mins	20	950 minutes
Participant Observation	Park, home, office area, public transportation	2.9 hours	62	180 hours
Follow-up semi-structured interview	Café, Skype	34.6 mins	13	450 minutes

Table 3: Summary of key findings

Dichotomies	Health	Indulgence	Labour	Leisure
Moral codes	▪ Self-tracking goals as authoritative ▪ Seek self-control of the body, health and wellbeing through self-tracking numbers ▪ Conform with the norms of healthy behaviour	▪ Pre-allocated suspension of self-tracking practices ▪ Justify as treats and cheat days ▪ Inactiveness as part of self-care	▪ Meticulous planning of self-tracking practices ▪ Careful use of time ▪ Transform mundane routine to meaningful practices through STT quantification	▪ Deliberate and spontaneous suspension of self-discipline ▪ Creative workarounds in self-tracking ▪ Align with healthy behaviour
Modes of subjectivation	▪ Make conscious efforts in self-tracking ▪ Perform constant monitoring to inform boundaries between healthy and unhealthy behaviours ▪ Active reflexive thinking to produce stable behavioural changes	▪ Juxtapose strict routine on weekdays with leniency on weekends ▪ Comfortable with own tendencies to break rules/moral codes ▪ Suspension of moral codes to stay engaged in the long run	▪ Transform utilitarian experience to hedonic gains (in self-tracking data) ▪ Intentional work against convenience to expand self-tracking efforts	▪ Adept in self-tracking ▪ Selective in generating self-tracking data ▪ Mask practices with pleasures ▪ Partiality to pleasurable practices

Subjectivities	Redemptive self	Awardee	Loyal self	Innovator
Substance of ethical agent	▪ View deviation with anxiety, fear and guilt ▪ Exercise self-critique and self-scrutiny ▪ Prescribe consequences as punishment to deviance ▪ Focus on regaining control over deviation and restore self-control	▪ Tolerate deviance ▪ Focus on achievements and devoid of punishment ▪ Free from guilt and worry	▪ Focus on digital accountability ▪ Follow moral codes in coherence ▪ Over-achiever ▪ Thorough self-examination ▪ Committed to self-tracking practices	▪ Dishonest with self-tracking ▪ Flexible with moral codes ▪ Free from guilt and worry ▪ Open-minded toward practices ▪ Committed to self-tracking data

Figure 1: Dichotomies as modes of subjectivation and emergence of subjectivities

Dichotomies as ontology

Health

Indulgence

Labour

Leisure

Redemptive self

Loyal

Awardee

Innovator

Deontology

Legend: -

—— Emerging subjectivities
---- Fluid movements between deontology

Savvy

Honest

Teleology
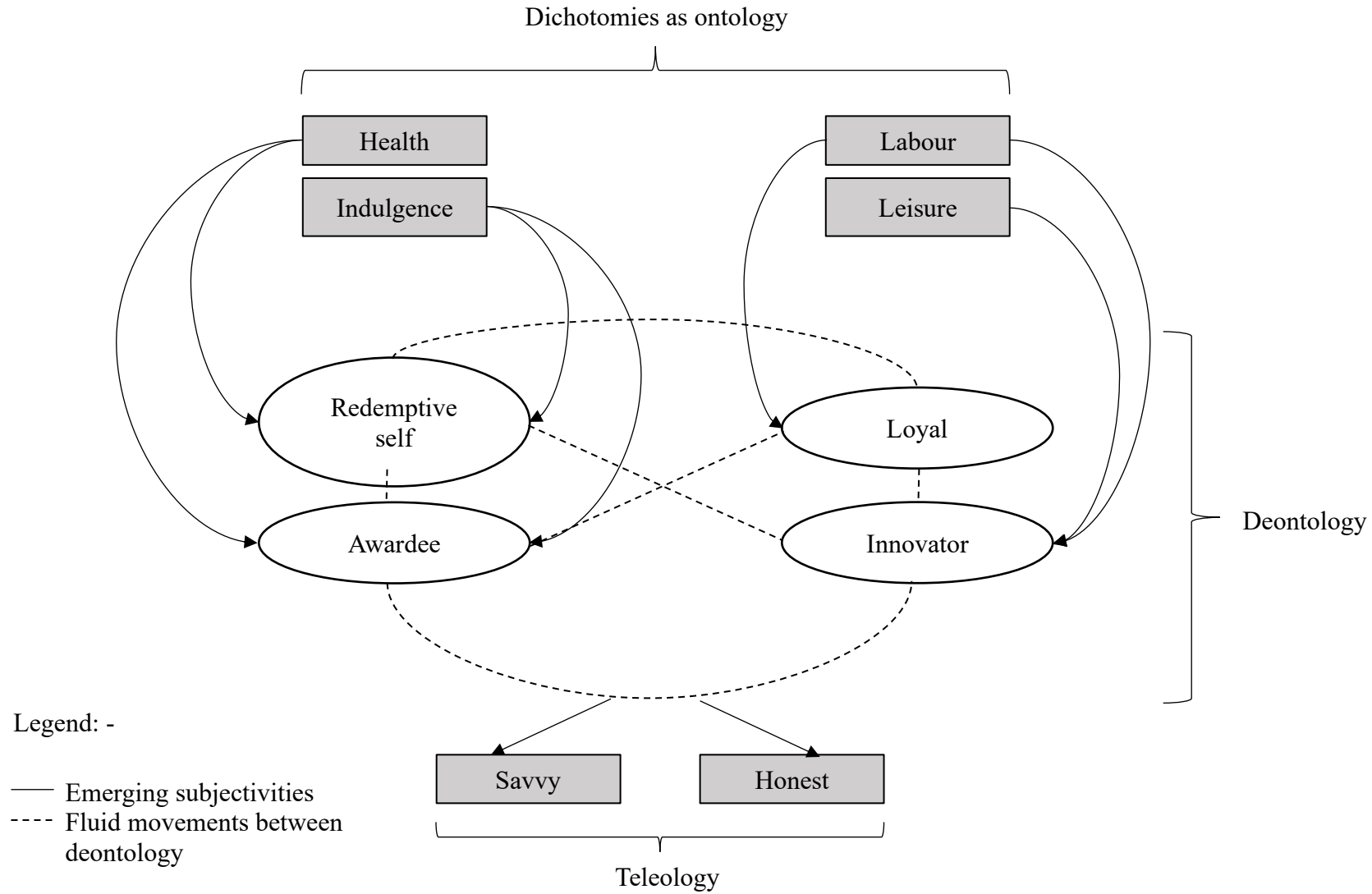
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