How Old am I?

Digital Culture and Quantified Ageing

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Abstract

In previous work we argued that ageing bodies and changes across the life-course were becoming measured, standardised, and treated according to a new logic of functionality, supplanting traditional categories of normality (Katz/Marshall 2004). In particular, the binary between the 'functional' and the 'dysfunctional' has become a powerful tool in mapping and distributing bodies around data-points, functional subsystems, and posthuman informatics. In this paper, we extend this line of analysis by exploring how current developments in self-tracking technologies and the proliferation of digital apps are creating new modes and styles of 'quantified ageing'. In particular, we identify four interrelated fields for inquiry that are specifically relevant in setting out a research agenda on ageing quantified selves and statistical bodies: 1) 'Wearables' and mobile technologies, including both technologies designed for self-monitoring/self-improvement (health, fitness, sleep, mood and so on) and those designed for surveillance of and 'management' of ageing individuals by children, caregivers or institutions. 2) Digital apps, including those that collect and connect data uploaded from wearable devices, and those that deploy various algorithms for 'calculating' age and its correlates. 3) The rhetorics of games and scores in age-related apps such as those used in digital 'brain training' games that track a person's imagined cognitive plasticity and enhancement, while promising protection against memory loss and even dementia. 4) The political economy of data sharing, aggregation and surveillance of ageing populations. Conclusions ponder wider sociological questions; for example, how will the insurance industry acquire and use data from digital health technologies to produce new actuarial standards? How will older individuals plan their futures according to the risks assembled through quantifying technologies? We argue that the technical turn to new ways of quantifying and standardising measurements of age raises a range of complex and important questions about ageism, agency and inequality.

Introduction

Researchers in ageing studies have recently moved away from biological and biomedical models of age to re-imagine the complex subjective and culturally mediated ways in which age is embodied, measured, and expressed in multiple and non-chronological ways. At the same time, the proliferation of new consumer and health technologies aimed at enabling self-knowledge and self-tracking has raised important ethical and sociological questions about measurement, standardisation, surveillance, risk-management, selfhood and sociality. These questions are of great relevance to ageing populations and individuals as their healthcare supports shift from governmental to individual realms of responsibility. However, age has been largely neglected in the rapidly-expanding research community exploring these technologies.

In previous work we argued that ageing bodies and changes across the life-course were becoming measured, standardised, and treated according to a new logic of *functionality*, supplanting traditional categories of normality (Katz/Marshall 2004). In this contribution, we extend this line of analysis by suggesting that current developments in self-tracking technologies and the proliferation of digital apps are creating new modes and styles of 'quantified ageing'.

We begin by drawing on recent work in cultural gerontology on the complexities of measuring age in contemporary biosocial regimes, and then sketch out some interrelated fields for inquiry that are specifically relevant in setting out a research agenda on *ageing* quantified selves and statistical bodies

Cultural Gerontology and the Recalibration of Age

Sociologists of post-traditional society contend that the conventional stages of life have become contingent and negotiable. New work, retirement, residence and intergenerational relations have created conditions whereby the experience of ageing is no longer chiefly defined by chronological age. Cultural gerontologists have argued that the current blurring of life-course identities, the longevity stretch in population ageing, the globalisation of ageing spaces, the popularity of anti-ageing industries and the new contingencies around life transitions have rendered the measuring of human ageing increasingly indeterminate in the wake of a postmodern life course (Gilleard/Higgs 2005; Katz 2005; Katz 2014; Marshall 2015). While even the gerontological sciences have struggled with alternative, non-chronological age definitions (Moreira 2015a; 2015b), age is still being measured and quantified via a pervasive logic of functional age grounded in the aggregation of physical capacities. In particular, the binary between the 'functional' and the 'dysfunctional' has become a powerful tool in mapping and distributing bodies around data-points, functional subsystems, and posthuman informatics, making bodies available to a wide variety of techniques of measurement, standardization and intervention (Katz/Marshall 2004). While functional age may appear to diversify ageing

and liberate it from the constraints of chronological biomarkers, its mapping of the ageing body is aligned to our ageist culture that reduces the social determinants of ageing to matters of individual choice and responsibility. What have been termed 'biosocial' technologies produce images of life, including ageing, as infinitely modifiable and open to being optimized (Hogle 2005; 2007; Rose 2007). Neoliberal styles of self-care redistribute the capacities of the body across a wider biosocial order of ageing. Further, the biosocial order is one that encourages people to congregate as biocitizens around various diagnoses (Rose/Novas 2005), and more recently, as quantified selves (Barrett et al. 2013; Nafus and Sherman 2014; Ruckenstein forthcoming). Thus, the biosocial order and its incorporation of functional age becomes the contextual background for understanding how self-tracking, digital and 'smart' technologies for older people integrate populational surveillance, individualized care, agential policies (such as 'active ageing'), marketable health-products and new risk-averse social strata.

The Technologies of 'Quantified Ageing'

Three types of technologies related to tracking and measuring age and age-related capacities are of interest here: a) wearable technologies; b) age-related algorithms; and c) incentivisation through the rhetoric of games and scores.

a) Wearable technologies, one of the key trends at the 2015 Consumer Electronics Show (Bowman 2014), include those linked to self-monitoring and tracking (such as FitBits), and those designed to also permit monitoring and tracking by others (such as Tempo or Lively), with only the latter explicitly linked to age. Lupton (2014b) is instructive in positioning a sociological approach to self-tracking as emphasizing its meaning in relation to "… wider discourses on technology, selfhood, the body and social relations that circulate within the cultural context in which the practice is carried out" (Lupton 2014b). It is these discourses that the research proposed here is aimed at unpacking and analysing, especially since age, while figuring prominently in such discourses, has also been neglected in the growing research on self-tracking and 'quantified selves'.

Wearable tracking technologies designed specifically for ageing individuals are designed less as technologies of self-knowledge than as tools to enable others to monitor and assess such individuals' functions, abilities and locations. For example, the external process of collecting on an individual's movements can issue machine-generated alerts if deviations are noted from established patterns of movement. While some research on these ambient monitoring systems suggest that they may be positively received (Hossain/Ahmed 2012; Sixsmith 2000) questions have been raised about both their ethical implications and efficacy (Lie/Lindsay/Brittain 2015; Mortensen/Sixsmith/Woolrych 2015; Neven 2015; Pritchard/Brittain 2015).

b) In a range of digital applications, algorithms are used to analyse, link and compare data and to identify patterns as the basis of decision-making.

As boyd and Crawford argue, they are part of the mythology of 'big data', purporting to offer "a higher form of intelligence and knowledge that can generate insights that were previously impossible, with an aura of truth, objectivity and accuracy" (2012: 663). The algorithmic logic that underpins digital applications reflects a particular confluence of expert discourses, statistical knowledge and standards which can be met or can set markers of failure or risk. With respect to self-tracking, individual measures (such as step count or heart rate) become part of estimates of risk. In devices designed for tracking others, machine-learning technology is employed to determine deviations from 'normal' routines indicated by, for example, the number of times the refrigerator door was opened or the length of time spent out of bed between hours designated as sleep time. Other apps promise to measure and calibrate age and age-related functions and risks in various ways. For example, Microsoft's Age Robot, unveiled at its 2015 developer's conference, uses facial recognition and machine-learning technologies to predict age from photographs. *RealAge* – a site promoted by popular TV doctor Mehmet Oz – promises to tell you how old you really are on the inside based on information you enter about your family history and lifestyle. Canadian tech start-up Vivametrica feeds chronological age, gender, BMI (body mass index) and average daily 'step count' into its algorithm, and then calculates your relative risk for the four most common age-related chronic illnesses. Because 'BMI' and 'step count' are themselves calculated estimates, self-knowledge gleaned from self-tracking and monitoring are already assumed. These are just a few recent examples of what might be called 'ageing by algorithm'.

c) 'Gamification' increases the consumer appeal of self-trackers and digital tools. The rhetoric of games and scores has been widely deployed to incentivise and represent 'progress' (Millington 2009; Rich/Miah 2014), to produce commercially useful data (Till 2014) and to make surveillance 'pleasurable' (Whitson 2013). Of particular interest here are 'brain training' and cognitive enhancement apps which are marketed to ageing individuals as tracking a person's imagined cognitive plasticity and enhancement, while promising protection against memory loss and even dementia. 'Brain-boosting' computer games such as *BrainAge 2* or those provided by HAPPYNeuron fill the pages of retirement and lifestyle magazines. Research has demonstrated that they exaggerate their benefits, which are mostly imagined into existence through score-keeping, expert testimonials, and excitedly shared maximal/minimal standards (Millington 2011). Indeed, for older individuals, the entire brainwork enterprise creates ambiguous images of ageing – both positive and improvable, but negative and inevitable. These developments are especially salient in a culture terrified of memory loss and dementia, sensationalised in the media by their negative images of population ageing 'tides', 'tsunamis', 'storms', and 'bombs', along with zombie scenarios of demented 'never-ending funerals' and lost souls (Zeilig 2014).

The Political Economy of 'Quantified Ageing'

All of these technologies of tracking and measuring need to be located in the political economy of data sharing, aggregation and surveillance of ageing populations. Some research suggests that data sharing may produce new forms of sociality, as virtual communities form around common interests (Nafus/ Sherman 2014). Little research has been undertaken in this respect with older adults, although previous research on older technologies, such as walking clubs using pedometers, suggests that the sociality was more significant than the technology (Copelton 2010; Oxlund/Whyte 2014). Of particular interest to our research are the implications of data aggregation for monitoring older populations. According to data analytics firm Vivametrica, "wearable activity monitors produce more biometric data than the combined public health surveys of every nation on the planet" (www.vivametrica.com). An entire industry has developed around capitalizing on digital tracking technologies (Rocketfuel 2014) making bodies into nodes, or collections of data points, in the "internet of things". In an era of 'big data' and algorithmic surveillance (Cheney-Lippold 2011; Ball/ Murakami-Wood 2013; Lyon/Bauman 2013; Bennett et al. 2014; Klauser/ Albrechtslund 2014; Lupton 2014a; Mortensen/Sixsmith/Woolrych 2015) the extent to which the devices and technologies of digital culture we have discussed may intensify dividing practices which categorize us functional/dysfunctional, young/old, active/inactive, fit/frail is an important line of analysis.

   Tracking and quantifying technologies have already become part of 'speculative futures' of ageing, linking as they do the biopolitics of ageing populations to the anatomo-politics of ageing bodies. How will the insurance industry acquire and use data aggregated from these technologies to produce new actuarial standards of success in ageing? How will normative conceptions of responsible ageing bodies shift? Will they be those that self-track and self-monitor? Do they offer themselves up to remote monitoring and tracking as a means to maintaining 'independence'? Do they demonstrate measurable efforts to forestall discernible ageing – physical and cognitive? Are they those that conform to algorithmic standards of controlled risk for dependency? How, as they engage with these technologies, do older people themselves contribute to the re-calibration of age and age-related characteristics, and to the reshaping of age as a social category? All of these questions may underpin debates about care policy and the distribution of scarce resources in ageing societies.

To summarize, the proliferation of new technologies aimed at enabling self-knowledge, and the tracking of selves and others, has raised important ethical and sociological questions about measurement, standardization, surveillance, risk-management, selfhood and sociality. However, in the growing body of work on quantification and self-tracking cultures, age still figures mostly as simply a dimension of social inequality that may be associated with less access, interest or skill in using digital technologies (see for example Lupton 2013). We argue that there are much larger questions at stake, and we hope to encourage researchers to explore the ways that current developments in self-tracking technologies and

the proliferation of digital apps are creating new modes and styles of 'quantified ageing'. At a time when technological developments, demographic shifts and changing regimes of governmentality conjoin to problematize bodies – and here, specifically ageing bodies – a range of difficulties is presented in how to conceptualize, manage and optimize those bodies. We should not be surprised, then, as Nikolas Rose suggests, "that one response is [...] to seek to discipline these difficulties, to find some algorithms to adjudicate about them, to standardize procedures for the potentially conflictful decisions concerning them" (2007: 256). The technical turn to new ways of quantifying and standardising measurements of age exemplifies this response. Our argument is not to gainsay that new technologies may benefit the lives of older people (Schillmeier/Domenech 2010; Sixsmith/Gutman 2013), but to assert that such technologies cannot be assessed outside the social contexts in which they are developed, promoted, used and capitalized. Technologies that track, quantify and compare may indeed assist older people age more 'successfully', and 'age in place' more securely, but they also raise important questions about ageism, agency and inequality.

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Games to Live With

Speculations Regarding NikeFuel

Paolo Ruffino

Abstract

In this paper I offer an alternative way to look at games that require no form of play. The player of these games is only supposed to keep them always up-to-date and running, but no specific action is required. NikeFuel is a significant example of this kind of game. NikeFuel, a technology for the quantification of body movement developed by the sports company Nike, is applied in a series of gadgets. The most popular, Nike+, is a wristband that quantifies the movements of the user and converts them into a NikeFuel score, which can later be visualised on a laptop or mobile phone. The act of moving throughout the day is transformed into a game-like experience, according to the principles of gamification. Gamification and quantified-self technologies have been noted for their performative potential and their capacity to control and inform our bodies (Whitson 2015). From a Foucauldian perspective, quantified-self technologies are attempts to rationalise the practices and movements of living organisms, as forms of biopolitical control (Foucault 2005, Schrape 2014). However, these are also spaces of transformation of the conditions under which the self becomes possible. Through NikeFuel, and other examples that I explore in this paper (Farmville, Cookie Clicker, CarnageHug), the player has to come to terms with games that act as parasites on their own lives. Thus, I argue that Nike+ can also be seen to complicate our thoughts about the contemporary digital technologies that surround us on an everyday basis. In this paper I will argue, possibly counter-intuitively, that gamification and quantified-self technologies are not necessarily tools that we use for a specific purpose; these are technologies we carry around with us and live with. As such, we are transformed by them as much as we transform them. Thus, the problem raised in this paper is about how we can co-habit and be hospitable with these "parasites" (Serres 1982).

Introduction

NikeFuel is a technology developed by the sports company Nike. First introduced in 2012, NikeFuel is a system for measuring body movement. Its most notorious application is in the Nike+ Fuelband wristband, a gadget that counts the movements of the body of the user through an accelerometer, and connects

via USB and Bluetooth to laptops and mobile phones. But there is more to it than that. NikeFuel, as a "life-tracking device", is a tool for what has been called the quantification of the self. Indeed, according to the sports company, in NikeFuel what comes to be quantified is not just movement, but life itself. This is in fact what Nike states in its advertisement:

"Our minds, our bodies and our experience all tell us that movement is life and that the more we move the more we live. It's something athletes have understood from the beginning. The kind of movement it takes to improve your game is the kind of movement it takes to improve your life. But unlike sport, life doesn't come with convenient ways of measuring movement. So we developed one. NikeFuel: a single universal unit uniquely designed to measure the movement of the entire human body for the entire human race, whatever your weight, whatever your gender, whatever your activity. It's that simple and that revolutionary. So get out there find what fuels you and get moving." (Nike, Inc. 2013)

Nike's attempt at quantifying movement could indeed be seen within a discursive framework where the very definition of life is generated. In this definition, life and the movement of the body are the same. The possibility of measuring, controlling, and informing human bodies is a shared characteristic of many other gamification and quantified-self technologies. Jennifer Whitson has argued that "there is a lot of interest in using gamification as a technology of government that shapes users' conduct in the hope of producing certain desired effects (such as using gamification to increase productivity in call centres) and averting certain undesired events (such as using gamification to reduce employee churn and absenteeism)" (Whitson 2015: 341).

From a Foucauldian perspective, quantified-self technologies rationalise the practices and movements of living organisms, as forms of biopolitical control (Schrape 2014). Certainly, the NikeFuel wristband is a 'thorn in flesh': a power that is at the same time repressive and productive, and that limits the individual who wears it through specific practices of self-production (Foucault 2005).

Gamification can be seen, via Foucault, as being based on, and at the same time bringing about, a specific form of truth (Foucault 2005). The techniques of knowledge of the self, analysed by Foucault with respect to Greek and Latin times and later with respect to Christian and contemporary culture, construct the possibility of arriving at and articulating the truth about oneself. The production of a form of truth is replicated in the discourses surrounding gamification. In these discourses, truth is presented as the equivalent of the collection of all possible data about one's body. For instance, in Jane McGonigal's game *Super-Better*, a browser based game where players set a real-life goal for themselves and are guided towards its completion, self-improvement is defined through the evidence of statistics and medical research, and the standards for a good life are seen as a direct consequence of this data (McGonigal 2011). In the textbooks on gamification, such as *Gamification by Design*, gamification is presented as a technique based on the collection and analysis of previous experiences in user engagement (Zichermann/Cunningham 2011). Resulting from the systematic analysis of previously successful cases, gamification can be sold as a reliable,

trustworthy technique for engaging audiences. It also becomes possible to talk about a correct form of gamification, as opposed to a supposedly wrong kind of gamification, which could be imagined as being based on misleading or incomplete information, or relying on unquantifiable aspects.

Through these characteristics and design principles gamification has become what it is today: a series of practical and operational suggestions on how to involve users (be they customers, citizens, or gamers) and maximise their performance with respect to a specific goal. Gamification tends to take the form of a technique, a precise set of design solutions to gamify a certain experience. Gamification has been invented and narrated with the purpose, in the first place, of being a regulated and regulatory practice. It is born as a topic for design consultants, as a pitch for a new category of user-experience gurus and advertisement strategists.

The Gamified Self

It could then be asked, following Foucault's perspective, what kinds of selves are created through and by this specific technique? The gamified-self is constructed through the collection and archiving of data about the user. Data needs to first be collected and processed in order to later become part of a game, and is collected according to a principle of transparency: gamification plays with the facts about the user, and attempts to assist the user in improving these same facts, these truths about him- or herself.

NikeFuel, for example, is a system that is designed to receive and record already predicted signals; it rewards precise events that are already expected by the simulation, according to the principle of cybernetic systems as "governed by time-reversible causal stories" (Norbert Wiener, quoted in Crogan 2011: 5). The runner/player of NikeFuel is encouraged to comply with a regulatory frame of rules, where only specific events are expected, saved, calculated and evaluated. Through this practice of compliance, the runner/player of NikeFuel is normalised, and regulates him- or herself in order to maintain and progress in a process of constant self-normalisation. Failure to comply with the rules of NikeFuel means not following up on the request to produce information.

What appears at first as a game-like experience is soon revealed to frame a very bizarre kind of play, one where not only there is no final goal, but also where the players play with their own bodies as they conform to what is expected by the game itself. Moreover, the process of complying with the game does not happen through a series of deliberate and meaningful choices. NikeFuel is played as life is lived: by taking care of oneself.

Games With No Players

What sorts of play is this, and how can we look at it? Certainly it cannot be looked at through the most common perception of play – as fun, or as a pleasant activity. Already in *Man, Play, and Games*, Roger Caillois said that play is often

not pleasurable, but is instead "an occasion of pure waste: waste of time, energy, ingenuity, skill, and often of money" (1961: 5). But it could be further argued that human agency disappears altogether from NikeFuel. These are games that are played in a condition where humans' deliberate intervention has been eliminated as the game plays by itself.

Indeed, NikeFuel is not the first of its kind as there are other games that do not exactly require any form of intervention to be played. These are games where, even if human players are still present, the act of playing is reduced to a series of actions with no significant choice or calculation. These are in effect games with no play.

I am thinking of the popular Farmville by Zynga, a Facebook game that has been attracting millions of players so far. Farmville is played on social networks and its success relies on the activity of players who use their network of friends and contacts to gain an advantage at the game. Farmville, as do many other games based on social networks, asks its players to receive assistance from their personal contacts, thus encouraging every single player to involve as many friends as possible. Also, and most interestingly, a game like Farmville is played through a series of almost meaningless choices. Every time a possible action is presented, the outcome of that action is always already evident and it is absolutely clear to the player which choice is the optimal one: at any given moment it is always made clear where the player should click to receive the best possible outcome in terms of points scored. In Farmville there are, indeed, human players, but it is a game that could just as well be played by an algorithm.

To proceed towards another example, Cookie Clicker (2013) by Julien Thiennot offers a parody of games such as Farmville and, in doing so, explores the absence of human agency that underlies the game by Zynga. In Cookie Clicker points are earned by clicking on a cookie. After receiving about 10 cookie points, the player can spend those points to buy an automatic clicker that will give them 0.1 cookie points per second. The game starts from this initial purchase and then escalates towards an unlimited accumulation of cookies, automatic clickers, and further bizarre upgrades (including the Grandmas, the Cookie Factory, and a Cookie Time Machine that will travel in time to collect cookies from other ages). Eventually, after about 10-20 hours of play, the game is likely to automatically be generating around a billion cookies per second.

Cookie clicker is an example of a new emerging category of idle games; that is, games that keep playing themselves on a computer browser, in the background of other operations that will not affect the automatic process of accumulation. Cookie Clicker is supposed to be a parody of Farmville, but while exploiting the same mechanics as Facebook games it proves to be equally addictive. These are games where human intervention is reduced to a minimum, or sometimes is not needed at all. Human choices, when these are required to keep the game flowing, could be easily replaced by a macro that clicks on the next available upgrade. In Cookie Clicker, as well as in Farmville, the human has to act as would an artificial intelligence. We could repurpose the slogan used by Amazon to define its Mechanical Turk service for crowdsourcing: in crowdsourcing human actors are required to act as if they had artificial intelligence, and, for

this reason, Amazon defines crowdsourcing as "artificial artificial intelligence" (Amazon, Inc. 2015). Likewise, in these games the players are supposed to act as if they were controlled by software, as if they were artificial players.

For a game that has gone even further in this approach to gaming, where human agency is replaced by machines or machine-like actors, we could look at CarnageHug (2007) by Corrado Morgana. CarnageHug, based on the popular First-Person Shooter Unreal Tournament, displays game avatars controlled by an artificial intelligence locked in a small squared room. The avatars kill each other continuously, re-spawn and kill each other again. The automated commands force the bots to kill each other on sight, but the incredibly small environment reduces the actions to a chaotic, hectic and senseless mass murder. The artistic intervention can be seen as a further investigation of the possibilities opened by the disappearance of play from games. CarnageHug has been defined by Mathias Fuchs as a "(games-)world that contains actors who have to work ceaselessly without achieving anything for themselves or for others. The actors in Morgana's game work like the users of Farmville or any other gamification apps work when they think they play" (2014: 15).

The avatars of CarnageHug are not too dissimilar from the imagined users of NikeFuel. In the advertisement for Nike's product, quoted at the beginning of this essay, we see human beings running endlessly and ceaselessly while accumulating points on their wristbands. This is a run with no end and no consumption. The bodies of the players of NikeFuel could keep running forever, as much as new crops can always be harvested in Farmville, cookies can always be clicked in Cookie Clicker, and avatars can always shoot each other in CarnageHug.

Games as Parasites

NikeFuel, as well as the aforementioned examples and most of the representatives of gamification, are problematic for a theory of games and play. In fact, these are games where the activity of play almost completely disappears. However, I prefer not to solve the problem by classifying these experiences as non-games. I argue that these are games, just of a different kind. These are games that are not necessarily played for fun, pleasure, or self-improvement, but are games to coexist with, to come to terms with. Players of NikeFuel are embedded in an environment which they co-inhabit with their wristband, they carry it around, and they get obsessed or get along with it. Likewise, players of Farmville and Cookie Clicker have to comply with these games, get back to them regularly and click as much as possible.

As such, NikeFuel also complicates our common understanding of communication processes. The players of Nike+ are not just participating in a feedback loop with their wristband, they are relating to it, dealing with a symbiotic relation where the two ends of the system (player and wristband), although separate, act as parasites on each other.

Ultimately, it is a theory of parasites that I believe could prove useful for understanding this kind of games. In *The Parasite*, Michel Serres (1982) looks

at how communication processes are not just linear exchanges, from the sender to the receiver, but defined by the disturbances that are external to the system of information flow. The parasite, rather than being an element of disturbance, is understood by Serres as necessarily entangled within the system that it exploits and opens to further contamination.

Serres argues that the figure of the parasite, as well as the *hôte* (which means, in French, both host and guest), has both a social and a biological function that cannot be reduced to mere passivity. According to Serres, it is the parasite that makes communication possible. Any system, Serres argues, tends to be corrupted or interrupted by external factors. There is no chance that in the long term it can be kept closed and preserved as it is. In a communication exchange, it is interruption or disturbance that becomes, in the long run, the defining characteristic of the transmission. This disturbance then breeds further disturbances, allowing further waves of noise to again modify the transmission of the message. According to Serres, the alleged linearity of the communication process is not only inadequate, it also subverts the other hierarchy, theorised by the French author, where noise and parasites are the defining factors of communication.

The reason I turn to Serres for an analysis of NikeFuel is because, in his theory, the French author deconstructs the dualism of sender and receiver in communication processes. The third element, the parasite, is not merely an addition to the existing duality but is in fact an external factor that also makes the system itself possible. In Serres' theory, the parasite is not just otherness; it is also what enables a relation within the system. It is a thermal exciter, a disturbance, but also what changes existing relations.

NikeFuel and its player are probably better understood as one being the parasite of the other. This parasitical relation is continuously disrupted by uncountable factors that complicate their co-existence and, with it, the possibility of understanding it as part of a system. Systems constitute a problem in Serres' work, as he suggests that a study of communication should become a study of relations that break the supposed boundaries within which flows of information are imagined to be happening. In Serres' view, the system itself is the object of study of ontology. The system is a result of the narrowing down of a series of parasitic relations, and of the momentary freezing of an existing condition. Serres talks explicitly about the black box, as the intellectual gesture that denies transformation, thus hindering knowledge:

"When we do not understand, when we defer our knowledge to a later date, when the thing is too complex for the means at hand, when we put everything in a temporary black box, we prejudge the existence of a system. When we can finally open the box, we see that it works like a space of transformation. The only systems, instances, and substances come from our lack of knowledge. The system is nonknowledge [*sic*]. The other side of nonknowledge. One side of nonknowledge is chaos; the other, system. Knowledge forms a bridge between the two banks. Knowledge as such is a space for transformation." (Serres 1982: 73)

If, by opening the black box that is NikeFuel, we can look at it as a space of transformation, then what kind of knowledge can we get? At play in these processes of transformation, which result from the on-going relations between the game and the user, is the very condition of possibility of the self.

Conclusions

NikeFuel does not make much sense as a box, or as a tool to be used to improve one's health. It makes much more sense, instead, as a space of transformation where the truth about oneself is continuously negotiated. As such, NikeFuel is a strange game, one that is not supposed to be played but to live with, as parasites rather than players, as it becomes a parasite in its own turn of our own movement and physical transformation. NikeFuel is representative of a trend in gaming that is much more transversal than the gamification and quantified-self movement. It is in fact a category of games where no significant action is required, but that need to be kept always running and up-to-date. These are not games to play, but to live with.

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