Coupling Quantified Bodies

Affective Possibilities of Self-Quantification beyond the Self

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Abstract

The main promise behind the idea of self-quantification is to transform our lives through the continuous collection of numerical evidence about the body and its activity. Although this process may help boost self-knowledge, everyday life also involves a complex network of relations with other bodies that exert a significant, sometimes determining, influence on our behaviour. To address this concern, we suggest that self-quantification data can be modulated as perturbations to other human and non-human bodies that, in turn, may directly affect the everyday practices of the self. By coupling quantified bodies, we transform existing practices by disrupting the elements that realise, perform and reproduce existing practices. In order to explore and further understand the affective potential of this idea, we designed a system that creates unfamiliar, digitally enabled couplings between two quantified bodies: a human and a plant. In particular, in this design experiment we modulate walking activity data into perturbations to a quantified plant. How does this coupling transform the way we look at self-quantification? Are we bringing forth a new space of responsibility and ethical concern? What if the plant dies because someone did not walk enough? In this article we discuss the implications of creating such a coupling keeping a critical distance to current forms of self-quantification, which are often focused on change through prescriptive solutions rather than through the fostering of self-determined growth. With this work we aim to expand the current understanding of the affective possibilities of self-quantification in the context of social change.

Introduction

One of the promises behind the idea of self-quantification is to transform the ways in which we live our lives through the continuous collection of numerical evidence about the body and its activity. By quantifying ourselves, we are able to observe, compare, analyse, and reflect about data that represents our current patterns of living, transforming the body into a "different kind of knowable, calcu-

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lable and administrative object" (Shove et al. 2014: 100), which may contribute to bettering ourselves.

But has this promise of improvement come true in a "datafied life" (Ruckestein/Pantzar 2015)? With less than half of *Fitbit* buyers actually wearing the device after 6 months (Fitbit Inc. 2015), it seems that these devices are not playing their part in the long-term embrace of healthier ways of living. Moreover, self-quantification may result in fear and anxiety (e. g. Huniche et al. 2013) which are detrimental to people's health. Sjöklint et al. (2015) suggest that self-quantification devices are currently being used for self-exploration rather than as an actual commitment to change. Furthermore, looking at collected self-quantification data usually ends with users postponing change and finding excuses that rationally explain or neglect the data as a coping tactic to deal with broken expectations (ibid). Perhaps an explanation of these findings is provided by Pantzar and Ruckenstein (2015), who suggest that, in order to become integrated in our lives, self-quantification needs to not only *measure*, but also *matter*. For example, by measuring our heartbeats using a heart-rate monitor, we might change our relationship with our heart, becoming more emotionally attached to it, therefore "hearts and their beating start to matter more" (ibid). Although relevant, it seems that those current affective encounters enacted by self-quantification are not significant enough (i. e. its affective power is limited) to the "selves" yet, at least not enough for enabling lasting change in their lives.

We also believe that it is problematic to consider individual behaviour as the first and foremost thing that needs to be changed, which is arguably a common assumption behind self-quantification systems. When individual behaviour becomes the focus of enquiry, self-quantification tends to be used to rationally convince individuals to change beliefs and attitudes that inform behaviour choices. This approach disregards the complex network of relations – social context, materials, meanings, and so forth – of which the individual behaviour is but a small part. In other words, this approach tends to disregard the significance of self-quantification in relation to its broader context. In response, social practice theory suggests that behaviours and the contexts in which they occur have no separate existence, being both "sustained and changed through the ongoing reproduction of social practice" (Shove 2010). Therefore, more than influencing individual attitudes and beliefs, we should think in ways to affect the complex dynamics that emerge from the relations between the elements that define a social practice: materials, socially shared meanings and practical knowledge (Shove et al. 2012: 22-25).

In this paper, we explore ways in which self-quantification can become more meaningful and therefore – we will argue – more affective. In particular, we draw on the relatedness between humans and non-humans that participate in the broader context in which practices are enacted; in other words, self-quantification that has significance beyond the self.

The Affective Power of Coupling

It may sound paradoxical to try to push self-quantification beyond the self, however, if we distinguish the produced data from its subsequent modulation into different display modes (e. g. numbers, graphs, game inputs, audio, video and so on) (Nash 2012), the paradox fades. The affective power of self-quantification is not associated with the data itself ("data-as-data") – which has no ontological difference from the data that comes from other sources (ibid), such as, say, weather data. Its affective power relies ultimately in the way the data is transformed into a display state that can be perceived ("data-as-display"). This distinction is also useful to understand the association between self-quantification and the *self*. For example, in the heart-rate monitor example discussed above, the emotional attachment comes from the fact that a modulation is explicitly showing that the data has a direct relation to the *self*. Therefore, self-quantification's association with the *self* that is being quantified comes from the display modes that highlight self-oriented meanings. In sum, extending self-quantification beyond the self only requires of adequate display modes.

Self-quantification is limited not only in terms of self-centred display modes, but also in a somewhat restricted understanding of what a *self* is, which only considers *human selves*. What if we attach an activity tracker to a dog? Or if we monitor the photosynthesis process of a plant? Is it still a form of self-quantification? We believe that there is a great opportunity in including other ways of being into the *selves* that might be quantified. As we will show, extending our understanding of what a *self* is enable us to observe self-quantification from different, unfamiliar perspectives.

But what are the possibilities that this approach brings forth? If we embrace exploring different modulations that go beyond the self (including other ways of being) we are able to create *structural couplings* between quantified-selves. A *coupling* is enabled when self-quantification data is modulated as perturbations to other human and non-human bodies that, in turn, may directly affect the everyday practices in which the self participates. If the other body is also being quantified, these perturbations can operate in both ways. Humberto Maturana and Francisco Varela denoted this dynamic as *structural coupling*, which occurs "whenever there is a history of recurrent interactions leading to the structural congruence between two (or more) systems" (Maturana/Varela 1987: 75), involving reciprocal perturbations that change the structure of the involved organisms without destroying their organisation and autonomy as autopoietic (i. e. living) systems (Maturana 1975; Maturana/Varela 1980). By coupling quantified bodies, a coevolving dynamic between the coupled bodies is enabled.

Coupling Quantified Bodies: Human-Vegetal Play

In order to explore and further understand the affective potential of coupling bodies using self-quantification, we designed a system that creates unfamiliar, digitally-enabled couplings between two quantified bodies: a human and a plant.

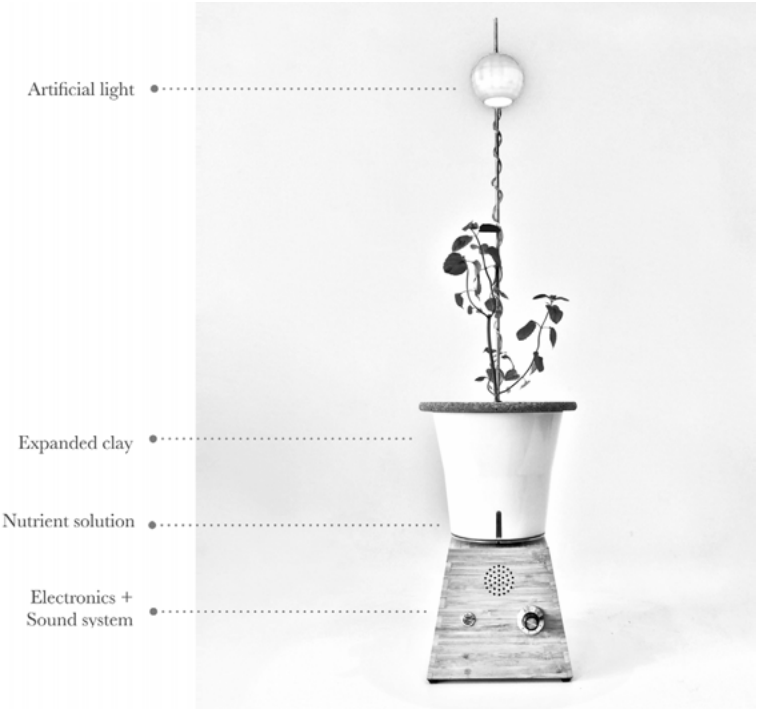

Fig. 1: The components of Dataponics: Human-Vegetal Play

In "Dataponics: Human-Vegetal Play" (Fig. 1), we map human physical activity measured by a *Fitbit* to the amount of light and water fed to a potted plant. Also, the system measures the moisture in the growing hydroponic medium (in this case, expanded clay) that surrounds the plant's roots, and plays different internet radio stations accordingly.

We consider the emerging dynamic of interactions between the human and the plant to be *play*, using the notion of "free movement within a more rigid structure" (Salen/Zimmerman 2004: 304). This notion provided us with a frame that guided our design decisions; our design aims to respect and preserve players' autonomy ("free movement") although the digital coupling (part of the "more rigid structure") may be sometimes disruptive for both the human and the plant.

In order to illustrate how framing the interactions as play influenced our design decisions, we can think of two relevant scenarios. For instance, what if a player does not want to be coupled? Based on the idea of play that preserves the players' autonomy, we chose to design a coupling that is *voluntary* from the human perspective; the human player needs to check-in by pressing a button every day in order to get coupled. Furthermore, we can extend our first scenario to the non-human player: what if the human player does not walk enough? Should the plant just die? Using the same principle, the coupling is *conditional* from the plant's perspective; the plant decouples if it is not getting enough light

or water. In this design, none of the players are enforced to participate in the coupling; the plant always gets what it needs to survive, and the human player can choose whether to be coupled or not. In other words, the interactions are not a matter of life or death, but rather an opportunity of affecting, and being affected by, the other player.

Besides preserving autonomy, the system's design also aims to resignify the "reward and punishment" approach based on positive or negative reinforcements. Providing water and light to a plant may be considered as a form of reward, yet the effects are slowly embodied into the plant in a non-linear, uncertain way (i. e. it is difficult, if not impossible, to directly link the state of the plant to each particular action). This shifts the focus from this complex, indirect form of reward and puts it into the other body's wellbeing. The slowness of the process and the uniqueness of the effects reframe the reward as such. Furthermore, the "benefits" of this complex reward go to the non-human player, which also avoids the "intensely individualistic focus of quantifying the self" (Lupton 2013), moving away from conceiving the human as a self-interested agent that only pursues maximising his/her individual benefit.

Finally, another interesting dimension of enabling a coupling with other living species is to enrich our perspective about our everyday practices. What does the plant know about us after playing for a while? Under this light, the non-human players become "epistemic objects" which "embody what one does not yet know" (Miettinen/Virkkunen 2005: 438). In our example, the plant – as a sentient organism (Chamovitz 2012: 6) – becomes "aware" of the routines and rhythms of the human player's life. Just as someone that lives in the same house, the plant suddenly "knows about us" and slowly changes accordingly.

Conclusion

The design of "Dataponics: Human-Vegetal Play" allowed us to observe self-quantification from a different perspective and raises questions about its limits. By applying Maturana's notion of structural coupling, we were able to explore the implications of coupling bodies using self-quantification, triggering structural transformations in the involved quantified bodies.

We discussed how our design embraces play-based design values, such as preserving players' autonomy ("voluntary coupling") and limiting potential life-or-death effects of the digital coupling ("conditional coupling"). This approach helped us dealing with some critical issues that our system highlights; when other living species take part into self-quantification systems, the extremely narcissistic focus of current forms of self-quantification becomes problematic. The idea of coupling quantified bodies allowed us both facing and going beyond the utilitarian approach toward social change, in which other humans and non-humans are just means to a desired end. In summary, this research enriches the notion of self-quantification, extending it beyond the self through embracing play-based design values.

In this work, we explored unfamiliar forms of relatedness to a broader context that can be enacted using data about the self, which we hope contribute to critically evolve the ways in which we design and experience self-quantification in our everyday lives to enact social change.

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