In favour of a multiplied self. Can empathy lead to personal behaviour change?

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Abstract
Within the field of Personal Informatics much research pursues the design of applications for self-tracking to motivate behaviour change. Such tools usually follow an "egocentric" approach where the user is expected to reflect on and change her behaviour by visualizing her own collected data. I suggest that a system where the data of a user is mapped into the wellbeing of an external entity or a community, with which the user establishes an affective bond, could lead to an alternative approach towards self-awareness, based on empathy and vicarious emotions such as altruism and compassion.

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Personal informatics, Quantified Self, Awareness, Empathy.

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Introduction
The rise of desktop, mobile applications and wearable devices to track personal data reflects a trend in full swing. A large range of tools allow users to measure any kind of data regarding their behaviours: from heart rate to calories consumed, sleep patterns, mental waves, steps taken and so on. Despite their different

approaches, personal informatics systems aim at helping people collect data and reflect on behavioural information to deepen understanding on their own habits [1].

My claim is that most of these systems are designed around the assumption that the rationalization of our data may anchor a sense of self-responsibility and motivation, and enable us to achieve behaviour change. As an alternative, I propose to explore a different approach to behavioural change based on empathy and other vicarious emotions such as compassion and altruism.

Personal Informatics systems

The FitBit, Nike+ FuelBand and UbiFit are three well-known applications that exemplify common approaches towards designing personal informatics (PI) systems aimed at tracking physical activity and wellness.

The Fitbit (http://www.fitbit.com) is a monitoring system that can be worn by the user to track activity levels and sleep patterns. The system wirelessly communicates with a base station in the home that uploads the activity progress to the cloud. Burned calories and steps taken are quantified and represented in the display of the device. The user can set goals and track activity patterns through a website. The Nike+ FuelBand is a wrist-worn device designed to measure a user's physical activity and quantify it by converting it to "NikeFuel". It includes a display of LED lights to show the user's progress toward their goal, NikeFuel earned, calories burned, steps taken, and the time. It connects with a mobile app that provides visualizations of the user's data [2]. UbiFit explores a different approach where data visualization and awareness are considered key drivers for behavioural change [3]. The app transforms the background wallpaper on a smartphone into a garden. As users become more active throughout the week the garden grows, with several flowers that stand for different activities. The appearance of butterflies in the garden indicates the achievement of goals. UbiFit tracks the behaviour of the user through an external activity-monitoring device.

These applications share some considerations with regards to behaviour change: that goal setting might be an effective way to encourage it, that reflection and awareness play a fundamental role [4], that intentional change does not occur as an event but rather as a process in a series of stages, which require motivation [5].

Drawing on the existing literature, Byrne and Eslambolchilar extract design guidelines for mobile-based motivational activity monitoring applications. They suggest that systems should include features such as: goal setting, social features (enable users to share their progress with others pursuing the same goals), Feedback (allow users to track and monitor their progress and even compare it with that of others), reminders for maintenance [6]. Still, researchers posit that PI tools must address different types of users or those who may be at very different stages. He et al. [7] Propose a framework inspired on the Trans-theoretical Model for practitioners to develop applications which rely on motivational goals for a series of predefined stages: pre-contemplation, contemplation, preparation, action, and maintenance.

Quantified empathy

Despite the variety of data visualization and feedback techniques, the consideration of the stages that lead to a behavioural change, and the many features that make applications different, it seems like personal data tracking systems all respond to a similar ideology: behaviour change is the desired output of a sequence that begins with data tracking, followed by a representation of the data (designed, contextualized) and a process of awareness and reflection, which should lead to the adoption and maintenance of healthier habits.

This "egocentric loop" relies on the user's ability to make a judgement on his behaviour and take action to achieve a goal. But what happens if the user doesn't achieve the stated goals? In the current designs, little attention is paid to the consequences of not meeting the objectives or even leaving the application. It might occur that when the user discovers that no adverse consequences follow if she fails to comply the goals, then the engagement and motivation wanes.

In some cases or for some users, the sense of doing something for someone else might be a stronger drive than doing something for themselves. Approaches such as The Good Gym (GoodGym.org) support this observation. This London initiative provides meaningful ways to exercise by connecting people who want to get fit with physical tasks that need to be done, and which benefit the community. Tasks can range from shifting rubble, and planting gardens to making deliveries and visits to older people who feel lonely.

I propose a different approach to designing PI applications where the data of the user is not retrieved through the commonly used feedback techniques, but rather embodied by an external agent with whom the user can establish an affective relationship. As a result, by relying on empathy the system would elicit in the user vicariously based emotions such as altruism and compassion. Three forms of embodiment are suggested: a living organism such as a plant, a virtual agent such as a pet, and a representation of the user's community.

In the first scenario, a person would use an activity-monitoring device composed of a pedometer, a calorie counter and a heart-rate monitor. Data would be mapped into a device that controls the wellbeing of a plant. Heartbeat could correlate to water provision, amount of calories burnt to nutrition, and number of steps to quantity of light. The life of the plant is now linked to the performance of the user. Assuming that the user develops an affective bond with the plant, little reflection is needed so as to understand that by being healthy the user is taking care of the plant. The system would enable behaviour change by triggering compassion: an affective experience whose primary function is to facilitate cooperation and protection of the weak and those who suffer [8].

The second scenario proposes behavioural change through the elicitation of empathy. Although science has not agreed on a fixed definition, emotional or affective empathy refers to "The capacity to (a) be affected by and share the emotional state of another, (b) assess the reasons for the other's state, and (c) identify with the other, adopting his or her perspective [9]. In this case, the user's data is mapped to the wellbeing of an artificial pet like the Tamagotchi or an embodied creature such as the robotic seal Paro

(http://www.parorobots.com/). There is evidence that users can emotionally engage with artificial pets and in many cases these emotions are therapeutic [10]. Once the user has bonded with the pet, he would care for its wellbeing. The suffering of the animal caused by its owner's bad habits might trigger an empathic reaction capable of inspiring the adoption of healthier behavior.

The third scenario deals with the effects of cooperation in the wellbeing of a community because; as Benkler would put it "we are social beings no less than we are individuals" [11]. Empathy enables cooperation and, performing actions that enhance the wellbeing of a person´s community acts as a strong source of motivation. Neuroscience has shown that our brains reward us with a shot of dopamine and oxytocin when we help someone or perform a cooperative behavior [12, 13], such as reciprocity. PI applications, from wearable to mobile, could take advantage of our natural tendency towards altruism to motivate behavior change. A FuelBand-like device that converts the user´s fitness data into "sustainability points", which can be exchanged at a time bank platform or an app that warns you about community work that needs to be done around the area where you usually run, may be interesting approaches to motivate and engage those users who consider the trend of Quantified self somehow narcissistic.

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