

## Ethical Braces

*The ethical function of objects in times of wearable devices for self-tracking*

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### Abstract

The wearable devices for self-tracking (i.e. Jawbone, Fuelband by Nike, Misfit etc.) help people wearing them to do enough exercise to keep fit, compensating for their lack of willpower. Their success is part of a more general process of transferral of moral responsibility for personal behavior to objects, a process that has been going on for some time and has already been described by Bruno Latour, according to which the ethical precepts are translated either into practical instructions (you have to stamp your ticket if you want to get through the turnstiles), or in automatic actions that incorporate them (the spring loaded door closer unburdens whoever walks in or out from having to perform the good mannered gesture of closing the door after them), or, with the wearable devices, into fun and games (if you exercise you improve your score). The new technologies can accelerate this transfer and increase the inherent risk of exempting individuals from responsibility. The kind of thing that's happening to some of our practical know-how, like our ability to find our bearings, which has greatly diminished since the introduction of sat navs, may also happen to our moral faculties.

Designing devices that help us to behave properly either towards ourselves or the community, should always be focused on rehabilitation, rather than compensating for what we are no longer able or prepared to do. Along the lines of the orthopaedic brace, which both compensates for the momentary weakness of our joints while enabling us to re-educate it through exercise.

### Ethical Braces

I bought a wearable device of this kind that has become the rage in recent years. It's a self-tracking bracelet, capable of monitoring my physical activity and relative calorie consumption, as well as the quality and duration of my sleep. Besides that, it's a beautiful object. This is how it works, the App connected to the bracelet helps me to realise that for me, taking into account my age, weight and height, a healthy way of life that should include

an appropriate, but not excessive, amount of physical activity, is equivalent to an approximate calorie expenditure of 2900 kcal a day. I therefore set my daily goal to this value and the bracelet shows my progress during the day, measuring all my movements that have a bearing on my calorie consumption. When I reach my goal I'm gratified by that satisfying flashing light, that is the bracelet's way of saying "Well done!"

The data collected on a daily basis is stored and organized on my smartphone via bluetooth, so I can obtain medium to long term indications on my life style and adjust it according to the underlying principle that the average calorie balance should be negative, if I want to slim or if I don't want to put on weight.

These systems have a clear limitation; they record the calories I've burned, but not those I've assimilated, for which an estimate can only be based on what I know about the food I eat, meaning its weight and how much energy it supplies. So on the one hand I have a device that tells me with a fair degree of accuracy how much energy I consume, on the other, to have a comparable and useful level of accuracy, I would have to weight all my nourishment and calculate the calories produced by my body according to nutritional tables downloaded from internet or shown on the label. If my purpose is to keep my energy balance under control, my new bracelet isn't much help.

In actual fact this is not its real purpose. The bracelet helps to stimulate healthy behaviour linking it to a goal. Instead of taking the lift I climb the stairs in order to raise my score and get closer to my target. What happens at the dinner table is my business and depends on my self-constraint, but in the meantime I've done the right thing.

A few summers ago, during a walk on the Dolomites, I climbed a steep hill up to a nearby peak just a hundred or so yards away with my daughter who was 3 at the time. Seeing as Caterina wasn't too inclined to make the effort, I came up with a game. I'd throw a white stone a few yards ahead and would challenge her to find it. That was all it took to motivate her, so much so that she spent the whole ascent running after the stone. The bracelet works according to the same game based principle and provides me with additional motivation to make the effort that the care of my body requires, therefore, compensating for my lack of willpower.

I would call these kinds of devices, with an orthopaedic metaphor, 'ethical braces', whose purpose is to provide support when our moral fiber falls short.

In a wonderful essay (Latour 1993), Bruno Latour pointed out how human societies at times delegate the ethical behaviour usually expected of individuals to mechanisms. He offered the startling example of the spring loaded door closer, to which I wish to add my own particular slant.

Let's assume that, in a specific social context, closing the building front door after crossing the threshold is considered proper, based on a rational assessment, it avoids wasteful loss of heat and thwarts break-ins. Compliance with this rule could be entrusted to the competence and will of each of us, because everyone in that context should be aware of it and everyone should feel duty bound to carry out the simple procedures required. Where these implicit agreement conditions are not present, which may be the result of cultural issues "I don't see the problem", psychological ones "I always forget", political ones "I want to change the rules" or simple ethical ones "who cares", the building manager may post a notice in which he kindly invites the tenants to close the door, pointing out the reasons for his request so that it does not seem dictated by a particular aversion of his own to open doors. There are no more acceptable excuses as the rule cannot be ignored nor forgotten. In this case the individual ethical stance is apparent in the individual responses to a clear and unequivocal warning, no longer dependant on how that person has assimilated the community's rules. However, that doesn't mean that everyone will accept the entreaty. The next step is to threaten sanctions. But this action too has its limitations because its deterrent capacity depends on the value that each tenant assigns to the sanction, involves a wasteful process of establishing guilt and imposing a penalty.

The most effective solution one can come up with is to keep the door permanently closed and "replace the unreliable humans with a non human delegate, whose only function is to open and close the door", (Latour 1992, tr. it.) meaning install a spring loaded door closer. The door closer incorporates the rule, removes any choice from individuals over this matter and transfers any residual responsibility on whoever is required to guarantee the efficiency of the mechanism, meaning the manufacturer and the maintenance team.

There are countless examples of mechanisms or objects that receive an ethical proxy from society; the turnstiles that provide access to trains only if one has a valid ticket, the central reservation that physically hinders cars from invading a bus lane, the intermittent beep that is triggered when a car is moving and the driver or a passenger is not wearing his or her safety belt (the beep is both a reminder and a penalty as we put the belt on to get it to

stop) and the systems used to organize queues, essential in societies where individuals cannot abide by the simple principle of first come first served.

Among the objects that help people conform to a shared idea of common good, the wearable device I've bought belongs to a new species. I call it a brace, borrowing an orthopaedic term, for the reasons indicated above, but also because it is a personal object, to be worn and carried around: thus the definition wouldn't really apply to a door closer.

The good which it addresses and towards which it focuses my behavior is an individual one, meaning my health, but I can't help thinking that in the future a similar object could help me to comply with the rules of cohabitation, warning me, for example, if I've skipped a queue, or paying my ticket for me, automatically and unfailingly, as soon as I get on a bus.

Its influence on my behavior, as far as our current interaction is managed, is comparable to the notice in the door closer example I described earlier. At 6.00 pm for example, on a work day, the reminder of the progress bar that visually represents how close I am to my goal, resounds in my mind like a gentle warning: "Remember you still have three notches to go. It would be advisable to go for a stroll". But nothing stops me from imagining that 10 years down the road my next bracelet won't be so accommodating and will start to vibrate at regular intervals, like an alarm clock in snooze mode, until I finally decide to go for jog "Move your ass, buddy!". Envisage that, by interacting with the nanotechnology in the state-of-the-art packaging, it will stop me from accessing the food I want to eat because it will upset my daily energy balance.

These technologies are still in their early days, but the first products point to particularly interesting development, some of which verge on the dystopic, whose more disturbing aspects are linked to this kind of transfer of moral responsibility from people to objects and to the devices with which they interact. We will have to tread carefully on this ground. To reinforce our feeling of responsibility towards ourselves and society, the ethical braces should be increasingly used for rehabilitation processes, and not as a mere compensation or complete replacement. In other words, in keeping with our orthopaedic metaphor, they mustn't become prosthesis. The risk is the atrophy of our moral faculties, due to a decaying process triggered by lack of use, the same kind of thing that is happening to some of our practical abilities, such as our ability to find our bearings in a city or memorizing data, since we've been graced with the presence of sat navs and digital databases. One only need consider the kind of problems that we face right now, in terms of public order, when a

blackout hits a big city. Or more simply, what would happen if the turnstiles of the underground stopped working for a day: I'm ready to wager that a very small minority, of which I'm not sure I'd be a part, would tear their ticket up after the journey, a very civil gesture that would ensure they didn't use it again. These few righteous people would be basing their action on the original ethical principle whereby public transport services are paid by those who use them. The multitude wouldn't consider this option, because technology has converted the ethical tenet into a practical instruction, "to open gate you must introduce a valid ticket in the slot". If the gate is already open the instruction is useless and nothing else need be considered.

My daughter has learned that the thrill of reaching the top of a mountain is worth the effort involved. She has learned this thanks to my playful stimuli that have enabled her to make the effort and gradually understand its purpose. Now she no longer need to be stimulated because the conquest of the peak is sufficient motivation of its own. The same thing could happen with my wearable device. Gradually, thanks to its stimuli, I'll get used to a healthier and active way of life and experience the advantages until these provide sufficient motivation for me to behave responsibly towards my health. At that point I'll take the stairs and not the lift out of an independent impulse and not because of an external inducement. My ethical brace will have achieved its purpose and I'll no longer need it.

### **Designing an ethical brace**

To create devices that help people behave properly towards themselves or towards the community, without weakening their readiness to exercise an independent moral control over behavior, one has to focus the project on rehabilitation, rather than compensation. One must therefore design not just so as to induce people to comply with the ethical precept but in order to help them to retain it.

With reference to a couple of examples I suggested earlier, a possible rehabilitation strategy could be the programmed suspension of the prescription. The device occasionally stops exercising its influence on our individual behavior and puts all responsibility back on the individual's shoulders, helping them to reconnect to the ethical principle incorporated in the device.

First example, today my self-tracker has put me to the test (as happens from time to time) by blanking out all indication of my daily progress for the entire day, without stopping its monitoring procedures, but depriving me of the incentive and the indications it usually

provides me with. At seven in the evening my bracelet gives me no indication of whether I've walked far enough and now I have to make my own decision as to whether I should take a stroll at a brisk pace to go home or accept a lift from a colleague. Tomorrow I will verify my blind performance on the App connected to the bracelet and I will have a measure not only of how close I got to my daily goal, but also to what extent I've managed to take on board the healthy life style I aspire to.

Second example, London underground institutes the Open Gate Day, once a week, when gates are left open as part of a commuter moralization campaign. The action of obliterating the ticket, which in any case is widely recommended, is no longer a necessary procedure to remove the obstacle that hinders access, but is only a way of paying for a public service, totally entrusted to my sense of responsibility towards the community. The system keeps recording the number of entries so it can compare the number of tickets stamped and provide a statistical assessment of the civic education of travellers. The company invariably suffers a financial loss on the Open Gate Day, but its voluntary exposure to the risk of abuse has helped many people internalise the ethical principle and allowed it to influence them even in other circumstances. Thus perhaps if there's a technical breakdown the number of users who will take advantage of the chance to travel on the same ticket for more trips will be reduced.

I've used these imaginary examples to show how considerations concerning the moral and ethical dimension of objects can be translated into design suggestions. The programmed suspension is an idea like many others that needs exploring.

I will round off with another tangible example this time, that provides an effective illustration of the shift from a compensative paradigm to a rehabilitative one in the design of an object: the Mentadent Vertical Expert toothbrush, not surprisingly designed by Design Group Italia.

At least since the end of the 90's, toothbrushes have been designed as devices capable of performing specific actions inside the mouth essentially without counting on the user's ability. Each new model has tapped into the promise of one or more benefits: flossing, gum massage, cleaning in areas with difficult access, polishing effect, delicate on the gums, etc. The designers have translated these promises into structural and formal features of the toothbrush head, starting with the arrangement of the bristles that define and more importantly, visually represent an ability that belongs to the toothbrush, that will be applied

regardless of the ability of the person handling it. The Mentadent Complete Cleaning toothbrush, for example "thanks to the combined action of four types of multifunctional bristles [...] ensures an in depth cleanliness of the entire mouth" (from Mentadent online communication).

This design and marketing strategy, adopted by the top market players, is based on the fact that people don't enjoy brushing their teeth and although they are fully aware that it's important for their health, they would like to spend as little time as possible on oral hygiene. In this context a toothbrush that promises to do their work for them is more interesting than one that doesn't.

Vertical Expert, despite also presenting itself as an active device, endowed with the 4 types of specialized bristles, introduces an element into its formal configuration that purposefully shifts the focus away from the toothbrush's ability to that of the brusher. The radial organization of the bristles has been developed in order to induce the user to manoeuvre the toothbrush correctly, as recommended by dentists, meaning holding it horizontally and rotating it around the axis lengthwise so that the bristles brush the teeth from the gum to the tip. The radial geometry of the object visually suggests the correct movement, supports it during use and to some extent imposes it because alternative movements clearly contradict this geometry and appear somewhat nonsensical.

The competence of the user is no longer irrelevant, in actual fact it is essential to the successful outcome of the operation of the object that helps to train and activate it.

One might say that this is a purely practical competence, that has little to do with any moral faculty or its rehabilitation. This is only partly the case. By using this toothbrush the user may achieve three objectives.

1. He or she becomes familiar with the most effective brushing technique, which they probably knew in theory anyway. In this way they acquire or retrieve a practical ability they hadn't been using for some time.
2. Induced by the object's prescriptions, the users adopt this technique on a regular basis, even if it's more complicated and extends oral hygiene times. In this way the toothbrush acts as an ethical brace because it compensates for people's lack of willpower. One day the user will ascertain whether they continue to brush in the correct way with a different brush.

3. The users once again feel fully responsible for a positive action for their health that they previously tended to delegate to an object because it was tiresome. The user becomes accustomed with the idea that diligence, regardless of the technique used, is more important for dental health than any ability assigned to a toothbrush.

The third objective achieved is the rehabilitation of his capacity to recognise positive actions and being prepared to make the effort required to achieve them in a specific context of daily life: oral hygiene. For a time, at least on this issue, they'll have a clear conscience.

### **Conclusions**

My 199 dollar Vessyl glass, that analyses and monitors everything I drink, sending me a warning beep to remind me to hydrate myself because hydration is important, particularly today when I've overdone the coffee and awhile has passed since my last sip. In the meantime my new interactive Oral-b Smart Series Power Toothbrush, reminds me via the smart phone that I've skipped my afternoon oral hygiene cycle. When I'll use it, after dinner at this point, I already know it will suggest I insist on the internal surfaces of the lower jaw, particularly on the left side where I tend to rush. In half an hour I have a video conference with my shrink. In the meantime I might manage a 20 minute stroll because it's already 7 and I still have three notches to go.