Mindfulness, Reflection, and Persuasion in Personal Informatics

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Abstract

A major design choice in personal informatics applications is how persuasive versus reflective an application will be. That is, will the system nudge people, unaware, toward goals a designer intends, will it help them set goals and then follow through on them, or will it surface data in a neutral way, allowing people to learn more about themselves but without a push to change or maintain their behavior in any way?

Author Keywords

Personal informatics, persuasion, reflection, mindfulness, ethics

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Personal informatics is inherently tied to behavior: reported behavior, monitored behavior, and planned behavior. When people interact with systems that help them keep track of and reflect on this behavior, they are doing so in spaces with a variety of behavioral nudges.

In my work, I have been considering when and how different behavioral nudges should be applied, and to

what extent they should be applied. I have encountered these questions in classrooms as well, often to the visible discomfort of those less familiar with the persuasive technology field [2].

I think that a spectrum – with technology that pushes people to do something without their knowledge at one end and technology that supports people in gaining insight into their existing behavior and achieving a behavior change they desire at the other – may be a useful framework for how researchers and designers think about systems for personal informatics. The first category might be persuasive technology, and the second category, reflective or mindful technology.

Persuasive Technology
A very narrow definition of persuasive technology might be systems that push people who interact with them to behave in certain ways, without those people choosing behavior change as an explicit goal. Though this definition is narrow, the category actually encompasses most systems: their design and defaults will favor certain behaviors over others. Whether or not it is the designer's intent, any environment in which people make choices is inherently persuasive; this is not novel to digital environments [4].

Mindful (or reflective?) Technology
For now, I'll call technology that helps people reflect on their behavior, whether or not people have goals and whether or not the system is aware of those goals, mindful technology. I'd put apps like *Last.fm* and *Dopplr* in this category, as well as a lot of tools that might be more commonly classified as persuasive technology, such as *UbiFit* [1], *LoseIt*, and other trackers. While designers of persuasive technology

steer users toward a goal that the designers' have in mind, or to other goals unintentionally, the designers of mindful technology work to enable give users to better know their own behavior, to support reflection and/or self-regulation in pursuit of goals that the users have chosen for themselves.

Mindfulness is, however, a somewhat loaded term with its own meaning, and that may or may not be helpful. If I were to go with the tradition of "support systems" naming, I might call applications in this category "reflection support systems," "goal support systems," or "self-regulation support systems."

Where to work and when?
I do not believe that this is quite the right distinction or categorization yet, but and I think these are two rather different approaches with different sets of ethical considerations and different design guidelines.

Even though my thinking is still a bit rough, I'm finding this idea useful in thinking through some of the current projects in our lab. For example, among the team members on *AffectCheck*,[1] a tool to help people see the emotional content of their tweets, we've been having a healthy debate about how prescriptive the system should be. Some team members prefer something more prescriptive – guiding people to tweet more positively, for example, or tweeting in ways that are likely to increase their follower and reply counts – while I lean toward something more reflective – some information about the tweet currently being authored, how the user's tweets have changed over time, here is how they stack up against the user's followers' tweets

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[1] https://www.affectcheck.org

or the rest of Twitter. While even comparisons with friends or others offer evidence of a norm and can be incredibly persuasive, the latter design still seems to be more about mindfulness than about persuasion.

As I mentioned above, all systems, by nature of being a designed, constrained environment, will have persuasive elements. For example, people using *Steps*, a Facebook application to promote walking (and other activity that registers on a pedometer), have signed up for the app to maintain or increase their current activity level.[2] They can set their own daily goals, but the app's goal recommender will push them to the fairly widely accepted recommendation of 10,000 steps per day. Other tools such as Adidas's *MiCoach* or *Nike+* have both tracking and coaching features. Even if people are opting into specific goals, the mere limited menu of available coaching programs is a bit persuasive, as this funnels people into those choices.

My preferences
In my work, I prefer to focus on helping people reflect on their behavior, set their own goals, and track progress toward them, rather than to nudge people toward goals that I have in mind. This is partly because I'm a data junkie, and I love systems that help me learn more about my behavior is without telling me what it should be. It is also partly because I don't trust myself to persuade people toward the right goal at all times. Systems have a long history of handling exceptions quite poorly. I don't want to build a system that makes someone feel bad or publicly shames them for using hotter water or a second rinse after a kid

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[2] I am developing this application at the University of Michigan with Paul Resnick and Caroline Richardson.

throws up on the linens, or that takes someone to task for driving more after an injury.

I also often eschew simple gamification, and when I design apps that show rankings or leaderboards, I often prefer to leave it to the viewer to decide whether it is good to be at the top of the leaderboard or the bottom. To see how too much gamification can prevent interfere with people working toward their own goals, consider the leaderboards on *TripIt* and similar sites. One person may want to have the fewest trips or miles, because they are trying to reduce their environmental impact or because they are trying to spend more time at home with family and friends, while another may be trying to maximize their trips. Designs that simply reveal data can support both goals, while designs that use terms like "winning" or that award badges to the person with the most trips start to shout: this is what you *should* do.

Toward guidelines?
Many of my preferences stem from concerns about doing persuasion *poorly*, rather than concerns doing persuasion at all. Persuading people who have not opted into a particular application can be an important part of public awareness campaigns in a variety of domains, and unintentional persuasion is an inevitable consequence of other designs. Unsure of when or how to appropriately persuade, though, I often choose to surface as much data as possible, as neutrally as possible.

Addressing some questions – some research questions and some as questions of our field's ethics – might make me a more comfortable designer of persuasive systems. These include:

- Do we have professional standards about when it is "okay" to employ different persuasive techniques? How much should designers and systems disclose the persuasive techniques they are using?

- How can we improve on exception handling in persuasive systems? This might involve better context sensing, or allowing people to declare an exception, or presenting data in a less judging way. For example, one friend brought up the example of Mint.com, which, when reporting that she had exceeded her monthly travel budget – a change brought about by a new job – simply reported what she spent and had said her goal was, rather than criticizing her or imposing other negative consequences for exceeding the budget.

- How do different personalities respond to different techniques for persuasion and promoting reflection? [3] A stimulus that one finds challenging, another may find shaming.

- Is persuasion vs. mindfulness or reflection even the right question or spectrum? My adviser, Paul Resnick, proposes that goals vs. no goals and, if there are goals, whether they are set by the system or the people using it, might be a more useful framing.

These are some admittedly rough thoughts on the relationship between persuasive and reflective systems. I'm co-organizing a workshop on Design, Influence, and Social Technologies at CSCW 2012[3], which I'm hoping will advance my thinking a bit, and I would love to participate in the personal informatics CHI workshop to hear from others.

References
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[3] http://distworkshop.wordpress.com/