Take a stance! Designing for healthy consumption

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CHI'13, April 27 – May 2, 2013, Paris, France.
ACM 978-1-XXXX-XXXX-X/XX/XX.

Abstract
Personal informatics apps that promote healthy consumption share similar aims, but vary in the means they adopt to meet them. The adopted means reflect different stances. Stances are the positions that designers implicitly take on a range of issues, such as personal information, freedom of choice and responsibility. Judgments on values such as privacy, autonomy and accountability underlie these stances. We argue for the use of stances as a tool to design personal informatics apps for healthy consumption. Making stances explicit and exploring alternate stances can help designers and stakeholders analyze means and their consequences, and identify and explore alternative approaches. This can better align app's approaches with users' values, improving ethical acceptability, adoption and long-term use. We examine a number of apps, identify the implicit stances they take, and propose next steps toward using stances as a design tool.

Author Keywords
Personal Informatics, technology for behavior change, persuasive technology, designer's values, stance.

ACM Classification Keywords
H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous.

Introduction

Healthcare systems are shifting from treatment-centered approaches where patients follow doctors' orders, to approaches focused on prevention and healthy living, where patients ought to take responsibility for their own health [5]. People's eating behavior is an especially important area to address. Nutrition is increasingly recognized a major determinant of chronic disease, such as cancer, cardiovascular disease and diabetes, and dietary changes have strong effects on health [10]. Personal informatics technologies are a promising way of supporting this shift in responsibility, through self-tracking and analysis of consumption behavior. Persuasive technologies could be similarly helpful in their ability to stimulate behavioral change (toward healthy consumption) [6]. However, this app area faces challenges encountered in personal informatics and persuasive technologies in general: creating awareness, changing unhealthy behavior, maintaining behavioral changes, and consolidating a healthy life-style (e.g., [9]).

Apps use a variety of strategies to meet the same basic aims of promoting healthy eating. Strategies range from providing food product information to fully tracking consumption and recommending alternative food products to choose. Some of the differences between strategies stem from considerations such as persuasive effectiveness and usability [3]. In many cases, though, different strategies reflect positions on issues such as paternalism, awareness, education.

For example, apps that take a prescriptive approach to promote healthy living (see [1] for some examples) reflect a position in support of (soft) paternalism, whereas an approach that does not prescribe reflects a less supportive (or even opposing) position. We refer to these positions as stances. Different judgments on values such as autonomy, accountability and privacy underlie these stances (see [4] for a similar argument). We argue that stances' alignment with users' values can affect how well users integrate apps into their lives, but stances and values are often left implicit (e.g., [2]).

In this position paper, we propose using explicit stances as a tool to inform design. In the next section, we examine a selection of apps that promote healthy eating habits, identify the strategies they adopt, and examine the stances and values underlying those strategies. Then, we discuss the benefits of explicitly considering stances in design, and briefly explore ways of doing so.

	prescribe	inform	evaluate	reward	social	track
Nutrition menu		×				×
FOVEA	×		×			×
Foodzy		×		×	×	×
Fooducate		×	×			
Food4You					×	×
Burpple	×				×	×
Thryve	×			×		×
Munch5aDay				×	×	×

Table 1: Examined apps and their features

Designers' stances and users' values in technologies for healthy consumption

Table 1 shows an overview of the main features of a selection of existing healthy consumption apps. These apps all aim to promote healthy eating habits, but differ in their strategies they adopt. These strategies reflect different stances, which we will examine here. The extent to which apps prescribe eating behavior reflects a stance toward users' freedom to make their own consumption choices. This affects users' personal autonomy; the more prescriptive the app is, the less it promotes user

autonomy. Also, insofar as the apps restricts users' autonomy with the aim of protecting users from harm, it supports paternalism. Prescription also reflects a stance on trust (and authority), in that the user is expected to trust the applicaiton's recommendations (as authoritative) to some extent. This also applies to less prescriptive approaches such as product evaluation or recommendation. The extent to which an app explains its recommendations reflects a stance on transparency. There are tensions between several of these values. Favoring paternalism comes at the expense of users' autonomy and ability to take responsibility. So, taking a stance here implies making a trade-off.

The extent to which an app provides food product information reflects a stance on how important it is for people to be educated about nutrition and its relation to health. It also reflects a stance on the importance of transparency and openness about ingredients and/or nutritional value. Furthermore, it reflects a stance on (users') responsibility, in that information can be aimed at helping users act responsibly or take responsibility with regard to their health by making informed choices. It can also reflect a stance on sustainability, by providing information on a product's ecological impact.

When apps use this information to evaluate products in terms of "good" or "bad", it reflects a stance on autonomy, insofar as it helps users make informed choices. However, stronger wording on and/or appeals to authority can limit users' freedom to choose for themselves.

Use of incentives to promote certain behavior such as "food scores" or "badges", can be an infringement of users' autonomy if users are not properly informed [3]. Incentives also reflect a stance on pleasure or fun, by making an app more game-like.

Social strategies (e.g., involving friends), reflects stance on a number of issues. Sharing users' food choices can pressure users to justify their choices, implicating accountability. This also affects a user's reputation as a (un)healthy and/or (ir)responsible person. Privacy is also implicated, in that sharing food choices reveals personal information. Social strategies also reflect stances on friendship, community, and fun.

Food-tracking strategies, such as food journals or calorie counters, reflect a stance on the importance of self-awareness. It also reflects a stance on people's accountability to themselves, in that they are presented with their own behavior, which they could feel they must justify for themselves. This type of feature also reflects a stance on privacy, by collecting personal information.

Next steps: exploring stances and values to guide interaction design

The examples illustrate how examining stances can help identify implicated values, and tensions and tradeoffs between values; identify implications for stakeholders; and discover alternatives (e.g., by considering opposite stances). This has the potential to improve technologies' alignment with their stakeholders' values. In turn, this alignment can drive long-term use, along with factors such as users' commitment, and the technology's perceived ease of use and usefulness. It also holds promise as a means to address the challenge of encouraging people to engage with the supportive technologies in the first place [8].

This is a topic of our ongoing research, in which we will examine the use of techniques to identify stances in strategies (and their means and ends), and techniques to take opposite stances, such contextual studies of apps and

strategies; mapping of strategies, stances and underlying values; and envisioning consequences of stances (e.g., using envisioning cards [7]).

With this in mind, we hope to put the issue of stances on the personal informatics agenda. Together with the personal informatics community, we hope to create and try new ways to uncover and examine the stances that underlie our approaches to promoting healthy behavior and healthy eating in particular, and new ways to discover and explore alternative stances and approaches.

The workshop provides an excellent opportunity to further these aims, and to investigate more deeply the role of stances in designing personal informatics systems. It is also a chance to put knowledge of stances to practice in designing prototypes, and to work with community members to translate uncovered stances and values into design guidelines.

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