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Persuasive Technology: Development and implementation of personalized technologies to change attitudes and behaviours

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Workshop 2: Contemplating change

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The central aim of this workshop is to bring together experts from academia and industry to reflect on and to discuss persuasive technology in the early stages of health behavior change (i.e., pre contemplation and contemplation stages). Tackling the challenges that current state of the art in health behavior change products and systems (BCPS) face requires multidisciplinary expertise from fields such as psychology, computer science, interaction design, design methodology, philosophy and beyond. Furthermore, we aim to initiate a body of knowledge that is both theoretical in nature (e.g., methodological underpinnings of designing for behavior change) and transferrable to practice (e.g., application in case studies across various health domains).

This workshop aims to integrate research papers with design cases to acknowledge both the theoretical and practical sides of this domain. We therefore welcome submissions in two categories: (1) research papers that can focus on theory, models, or frameworks around designing for health behavior change, with a particular focus on the pre-contemplation and contemplation stages. (2) design cases to be communicated through pictorials (i.e., annotated images that explain the story of how and why a product or service was developed).

Introduction

The official WHO (1948) definition of health is “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. This definition of health has been debated, arguing against it that it would “leave most of us unhealthy most of the time” (Smith, 2008). But what this definition does point out that how to be and stay healthy (or perhaps even be healthier than we are at the present time) is something that we need to consider throughout our lives. Over the last decades, we have seen a rapid increase of products and systems designed to support people in adopting healthier lifestyles. In 2015, an astonishing number of 165,000 mobile health applications were available on smartphone platforms, which was almost two times more than in 2013 (“Things are looking app”, 2016). Such systems may play an important role in raising awareness about the necessity of change and motivating people to adopt and sustain change in health behaviors. However, so far, most of these systems seem to focus on action and motivation at the moment where people have already decided that they need and want to change a specific behavior (see Ludden & Hekkert, 2014 for a review). As such, they are often not able to reach the large group of people that has not yet considered change.

Even for the group that does consider change, the process of change is slow, complex, and difficult. Siegel and Beck (2014) emphasize that any attempt to design for behavior change should start by acknowledging the intricate nature of this process. The complex nature of human behavior is often manifested in our personal dilemmas. For instance, we may want to have a healthier lifestyle than we already do: we want to cook healthier meals, exercise more regularly, stop smoking, drink less alcohol, get enough sleep and so on. But we also want to eat in that nice new restaurant with friends, spend time with our children or friends, and perform well at work. These goals and desires often conflict in everyday life, leaving people ‘caught in the horns of a dilemma’ (Riediger & Freund, 2004; p. 1). Dealing with personal dilemmas requires setting priorities, carefully managing personal resources (e.g., time and energy), and regulating emotional states (e.g., moods, desires). Therefore, products designed

to support people in changing their behavior can benefit from an understanding of personal dilemmas and the approaches designers can use to respond to them (Ozkaramanli, Desmet, & Ozcan, 2016).

Moreover, to consider the full process of behavior change, it can be helpful to consider different stages of change as defined in the transtheoretical model of health behavior (TTM) (Prochaska & Velicer, 1997). The TTM defines five stages that range from the moment where people are not yet aware that making certain changes would be beneficial for their health to the moment where a sustained behavior change has been made.

One of the main challenges is to know which unhealthy behavior to change and how to change it taking all aspects of our lives in consideration. For example, some people are stuck in the contemplation stage for long periods of time (chronic contemplation). Also, many people relapse from action or maintenance stages to an earlier stage, mostly to contemplate or prepare for another serious attempt at action. This is an aspect of health behavior change that, in our opinion, has so far not been addressed by technology that is aimed at health behavior change.

In summary, to further increase the effectiveness of health interventions, designers could adopt stages of change theory with a specific focus on personal dilemmas during the pre-contemplation and contemplation stages. This would enable them to design for the way people actually behave, and not for the way they want them to behave (Norman, 2007). This may seem contradictory, since the aim of these interventions IS to change people (or at least their behavior). However, as Prochaska and Velicer (1997) put it: instead of expecting people to match the needs of the interventions, the interventions need to match the motivational states of people. Here, analyzing people's dilemmas enable designers to understand the motivational and emotional underpinnings of how people choose among particular behavioral alternatives. For instance, one may want to get some exercise every morning to be energetic or to lose weight. Alternatively, one may want to linger in bed (instead of exercising) to get more sleep or to spend more time with his/her partner. Being aware of the actual motivations behind such competing choices enable designers to make more informed choices while designing health interventions. As a result, users are more likely to recognize these interventions as matching their motivational states, and will adopt and use them, which is essential for moving forward through the stages of change (Kuru & Forlizzi, 2015). For instance, when the technology becomes too interruptive (for example by constantly prompting the user to go out and take more steps), the user tends to stop using the technology because it conflicts with his or her needs at that moment (the user was sick and was resting at home). People want to be able to put their trust in the technology and expect the interventions to be "timely" and "reasonable" enough. Thus, the technology should be adaptive to the changing user needs and states so that the user can depend more on the technology and make better decisions.

Aims of the workshop

The central aim of this workshop is to bring together experts from academia and industry to reflect on and to discuss persuasive technology in the early stages of health behavior change (i.e., pre contemplation and contemplation stages). Tackling the challenges that current state of the art in health behavior change products and systems (BCPS) face requires multidisciplinary expertise from fields such as psychology, computer science, interaction design, design methodology, philosophy and beyond. Furthermore, we aim to initiate a body of knowledge that is both theoretical in nature (e.g., methodological underpinnings of designing for behavior change) and transferrable to practice (e.g., application in case studies across various health domains). As a result, the topics of interest for this workshop include theoretical work focusing on frameworks and models for developing health BCPS as well as (design) case studies to demonstrate the application of such theoretical work. This overall aim translates to the following three sub-aims:

1. Understanding the challenges people face in the early stages of behavior change (i.e., pre-contemplation and contemplation stages) to inform the design of more “fit to purpose” products and services
2. Evaluating how design of online and mobile interventions and the design of emerging, more tangible, integrated and distributed interactions currently tackle health behavior change.
3. Creating a framework for the future of designing health interventions: what are the (1) theoretical and (2) practical, opportunities and challenges that face us?

As the overall aim of the workshop is to stimulate multidisciplinary engagement in designing better-targeted health BCPS, the program includes several interactive parts that are designed to engage participants in discussion and that will (hopefully) lead to a better understanding of what future research and development in this field could look like. More specifically, the workshop aims to integrate research papers with design cases to acknowledge both the theoretical and practical sides of this domain. The organizers will call for traditional research papers that can focus on theory, models, or frameworks around designing for health behavior change, with a particular focus on the pre-contemplation and contemplation stages. In addition, the organizers will call for design cases to be communicated through pictorials (i.e., annotated images that explain the story of how and why a product or service was developed) to ensure participation of design practitioners or practice-oriented researchers in this field. Besides paper contributions, we welcome researchers and practitioners in fields such as industrial design, psychology, computer science, philosophy, and beyond, to join the workshop discussions. To ensure the quality of the discussions and the outcome, we limit the places in the workshop to 20 participants.

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