Advise, Acknowledge, Grow and Engage: Design Principles for a Mobile Wellness Application to Support Physical Activity

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ABSTRACT

This paper reports the findings of a constructive design research study exploring mobile wellness applications in two different contexts: Finland and India. The study arrived at four design principles for motivating users to engage in physical exercise: 1) Be my advisor, 2) Acknowledge my efforts, 3) Grow with me and 4) Keep me engaged. These design principles were built upon the results of exploratory and participatory field studies. The validation of the design principles was done by adopting them in the design process of a mobile application concept called the “Living Application”, which was evaluated in focus groups. The research process involved the total of 47 participants and 10 design professionals. The results indicate that the four design principles are relevant in the design of wellness applications, but need to be adapted to the local context and individual needs.

Keywords: Constructive Design Research, Design Principles, Mobile Applications, Motivation, Physical Activity, Physical Exercise, User-Centred Design, Well-Being, Wellness

INTRODUCTION

The growing incidence of health problems attributed to contemporary lifestyles is a global concern; people around the world suffer increasingly from obesity, type 2 diabetes and cardiovascular diseases (WHO report, 2009). Simultaneously, mobile devices are an increasingly promising platform for applications that support users in their health- and wellness-related activities because of their ubiquity and ability to provide personalised, adaptive support (Atienza & Patrick, 2011; Campbell & Choudhury, 2012; Klasnja & Pratt, 2012).

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This paper presents a constructive design research study of mobile wellness applications to support users’ motivation towards wellness related activities, specifically, in regard to increasing the amount of physical exercise. The focus of this study is on people who are at risk of developing a lifestyle related illness, for example, obesity due to a sedentary lifestyle. Most of the research and design in the domain of mobile wellness applications has previously been conducted in the western, developed areas. We combine research findings and inspiration from two extremely different contexts, India and Finland. The two countries differ from each other in numerous ways: in their size, population density, living standards, lifestyles, religions, wellness practices and environmental conditions (Ahtinen et al., 2008b). Despite these differences, being overweight is an increasingly prevalent health problem in both regions. Statistics show that in Finland 49% of 15 to 64-year-olds are overweight (WHO Global InfoBase) i.e. Body Mass Index more than 25 kg/m². The corresponding figure in India is 21-22% and WHO estimates that by the year 2015, 30% of Indians will be overweight (WHO report: The impact of chronic disease in India).

We adopted an empirical approach in the design research process to define the design principles for a motivating mobile wellness application. Utilizing several field study methods, we explored user needs in relation to wellness applications and based on our findings, reflected upon design strategies proposed by others, as well as made our own recommendations for design principles. We applied these design principles in the design of the “Living Application” concept and finally, evaluated them again in field studies.

The research goals of the design research study presented in this article were as follows:

1. To study, in two very different contexts, what are users’ needs in relation to a mobile wellness application that supports and motivates them to engage in physical activity (Phase 1);
2. To analyse the findings and formulate user-centric design principles for a mobile wellness application that would motivate people to exercise, as well as reflect our design principles upon existing design strategies of mobile wellness applications (Phase 2);
3. To demonstrate the principles through the design of a wellness application concept for motivating people to engage in physical activity (Phase 3);
4. To evaluate the design principles and the application concept in two different contexts (Phase 4).

Our study followed the principles of design research, more specifically, the constructive design research approach (Koskinen et al., 2011). In the constructive design research methodology, a representative form of some kind – a prototype, scenario, mock-up or a detailed concept that could be built in the future, is used to actualise the research goals. The intention is to identify problems and discover factors that might otherwise remain unnoticed. The constructive design research is usually future-oriented and plays with imaginary things rather than existing ones. In our design research process, we constructed an application concept, the “Living Application”, in the form of a scenario. The foundations of the “Living Application” were our empirical study findings as well as theoretical grounding.

The theories of psychology explaining the behavioural change process and the role of motivation in change provided the theoretical grounding of our work and are presented in the next section ‘Related Work’. In that section, we also describe the role of modern mobile communication technologies as a platform for tools that aim to support wellness, and provide a snapshot of the design strategies for mobile wellness applications suggested by others. In the same section, we offer a glimpse of the user experience factors that we find important in the design of wellness applications. The section ‘Constructive Design Research Process and
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