Mobile Persuasion for Health and Safety Promotion

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Abstract

Mobile apps are a very promising tool to promote healthy and safe attitudes and behaviors in users, and their number is rapidly growing in app stores. However, to create effective and successful mobile apps in the health and safety domains, we need to build bridges between Mobile HCI and other areas such as persuasive technology and health psychology. This tutorial will focus on principles and theories that must be taken into account in designing persuasive mobile apps for health and safety promotion, and on how to rigorously extend Mobile HCI evaluation methods to measure the effectiveness of such apps.

Author Keywords

Mobile Persuasive Apps, Safety, Health, Persuasion, Design, Evaluation, Methodologies, Human Factors.

ACM Classification Keywords

H.5.2 Information Interfaces and Presentation: User Interfaces—Evaluation/methodology; D.2.2. Design Tools and Techniques: User interfaces; H.5.m. Information interfaces and presentation: Miscellaneous.

Intended audience

The tutorial is introductory and does not have prerequisites or special requirements. It is intended for any conference participant interested in the topic.

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Introduction

Mobile apps are a very promising tool to promote healthy and safe attitudes and behaviors in users, and their number is rapidly growing in app stores. However, creating an effective and successful mobile app in the health and safety domains requires a wealth of multidisciplinary knowledge that includes usability and user experience, persuasion and persuasive technology, health and safety psychology. While the Mobile HCI community leads the way in studying methods and techniques to create usable apps and a positive mobile user experience, developing and deploying an effective mobile persuasive app requires the consideration of additional concepts, models and methodologies. For this reason, the purpose of this tutorial is to build bridges between the Mobile HCI and the Persuasive Technology communities. The tutorial will focus on the principles and theories that must be taken into account in designing persuasive mobile apps for health and safety promotion, and on how to rigorously extend Mobile HCI evaluation methods to measure the effectiveness of such apps.

Learning goals

The tutorial is organized into three main components, with different learning goals:

- Theory. Through this component, participants will gain an understanding of general concepts in persuasion and specific concepts and models used in the domain of health and safety communication.
- Design and Evaluation. Participants will learn about the practical design requirements and evaluation issues that are peculiar to persuasive mobile apps, and how to address them. The tutorial will achieve

this learning goal also through the presentation of real-world case studies.

 Interactive activity. Participants will engage in an interactive experience, by trying first-hand different mobile persuasive apps. They will critically analyze them, and link their features to the theory and the methods presented in the tutorial.

Topics and Activities

This section provides more details about each component of the tutorial.

Theory

This component of the tutorial will first introduce basic concepts of persuasion, addressing questions such as: What is persuasion? What are attitudes? How attitudes are formed and how they can be changed? Then, persuasion will be introduced into the mobile context, addressing questions such as: What roles mobile devices and apps can play in persuasion? What mobile persuasion principles have been formulated in the area of persuasive technology? Finally, the tutorial will introduce concepts and models that specifically address persuasion in the health and safety domains. The tutorial presenter will first illustrate the highly cited Protection Motivation Theory and Health Belief Model. Then, since these models tend to appeal to user's fears about health and safety, he will also illustrate alternative approaches that exploit the relations between positive emotions and cognition, without resorting to fear.

Design and Evaluation

This component of the tutorial will first discuss how the theoretical concepts and models introduced in the first



Figure 1: The Learn to Brace app [4].



Figure 2: The AEON Mindfulness app [3].



Figure 3: The Life Vest app [10].

component can be exploited in practice for the design and evaluation of mobile apps. To do so, it will resort to real-world examples concerning mobile apps available in app stores or in the literature. The discussed apps will deal with several different behaviors concerning healthy living (e.g., physical exercise, mindfulness, early detection of neurological symptoms) and safety (e.g., injury prevention, safe evacuation in aircraft emergencies, natural disaster preparedness). Then, the tutorial will explain how to augment the evaluations carried out in Mobile HCI with the assessment of new variables that concern attitude change, behavior change, and important predictors of possible future behavior (e.g., self-efficacy and locus of control).

Interactive activity

In the interactive component of the tutorial, attendees will be organized in groups that will try first-hand different mobile persuasive apps to see in action many of the concepts introduced by the tutorial. This will also stimulate thinking about the relations between theories, methods and the practical features of apps that have to be deployed in the real world. The tutorial presenter will assist attendees in the activity by providing feedback based on his experience in designing, evaluating and publicly deploying mobile persuasive apps that address real problems in the domains of health and safety. Figures 1, 2, and 3 illustrate examples of some of the apps that will be considered.

Materials provided to participants

The conference organization will distribute printouts of the slides used by the presenter to tutorial participants. Moreover, the presenter will provide apps that can be run on participants' mobile devices (all three major mobile operating systems will be supported: Android, Apple, Windows Mobile) for the interactive activity of the tutorial. He will send the download links to registered participants before the tutorial, in case some participants would like to try the apps in advance. In any case, installing apps on the participants' mobile devices is just an option offered to those who are interested, and it is not required to attend the tutorial. If some participants cannot install free apps on their personal devices, the presenter will demonstrate the apps to them through other means.

Brief biography of the instructor

Luca Chittaro is full professor in the Department of Mathematics and Computer Science of the University of Udine, Italy, where he teaches Human-Computer Interaction (HCI) and Persuasive Technology. He heads the HCI Lab (http://hcilab.uniud.it) of the University of Udine, leading projects in different areas, particularly in Mobile HCI, Persuasive Technology, Serious Games, Virtual Reality, and their applications in Health and Safety. He has authored or co-authored over 170 international academic publications, and he is an ACM Distinguished Speaker.

He has received research grants from a wide range of organizations, including the US Federal Aviation Administration (FAA), the European Union (EU), the Italian Ministry of University and Research (MIUR), and companies such as the Benetton Group.

He has been program chair of Persuasive 2014 (9th International Conference on Persuasive Technology), chair of Mobile HCI 2013, general co-chair of Mobile HCI 2007, program co-chair of ACM Web3D 2004 and ACM Web3D 2005. He serves on the Editorial Board of the Personal and Ubiquitous Computing journal. He has been editor of special issues of international journals such as Personal and Ubiquitous Computing, International Journal of Human-Computer Interaction, Artificial Intelligence in Medicine, Computers & Education.

In addition to academic research, he is a strong advocate of the societal impact of HCI. For this reason, in the last 10 years, he has enthusiastically worked with clinicians in various fields of health (e.g., physical rehabilitation, neurology, emergency medicine) as well as with safety experts in various areas (aviation safety, fire prevention, first response) to create innovative applications for real-world use. Two of his recently developed medical apps are currently in hospital use, while three of his recently released safety apps are receiving great attention from the public and the media. As of June 2015, they have been installed by more than 40'000 users, and have received positive reviews on major TV stations such as Fox News [10,11] and Discovery Channel as well as major tech news web sites such as Gizmodo and Slashdot.

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