Secondary Users and the Personal mHealth Record

Designing Tools to Improve Collaboration Between Patients and Providers

Harry D. Tunnell IV
School of Informatics and Computing
Dept. of Human-Centered Computing
Indiana University
Indianapolis, IN USA
hadtunne@iupui.edu

Mark Pfaff
Collaboration and Social Computing
The MITRE Corporation
Bedford, MA USA
mpfaff@mitre.org

Anthony Faiola
College of Applied Health Sciences
Dept. of Biomedical & Health Information Sciences
University of Illinois at Chicago
Chicago, IL USA
faiola@uic.edu

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I. INTRODUCTION

This paper describes a patient-centered health information technology (HIT) for primary and secondary users. Primary users are the main operators of a system and control dissemination of its information [1]. Secondary users have experiences through primary users [2]. A smartphone personal health record was prototyped for use in an experimental study with providers as secondary users. Patients are often secondary users in healthcare, but patient-centered care requires that patients have digital tools to manage their own health data to be better able to participate in healthcare decisions, making them primary users [3].

II. METHOD

There were three phases of formative work. The first was a pilot study. The second was requirements gathering using interviews and questionnaires. The third was usability testing and prototyping. Nearly 300 people were queried during the formative work and subsequent experimental study.

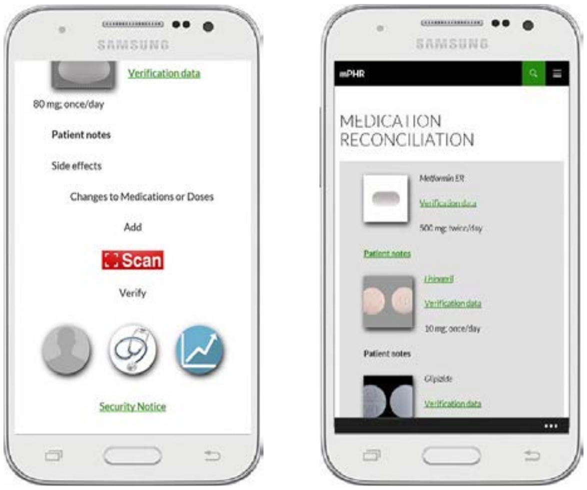

Fig. 1. Sample of the final prototype. Page organized for patients to manage medication information (left) and page organized for providers to view patient medication information during a consultation (right).

III. FINDINGS AND CONCLUSION

Requirements gathering highlighted that primary and secondary users have different needs. Disparities in perceptions about the same information were noted between the classes of user. For example, they hold vastly different perceptions of patient knowledge about medications.

An experimental study was conducted. In the study, 12 providers performed a simulated face-to-face clinical encounter with a patient role-player. The experiment compared two conditions, one in which the patient used the prototype, and one where the prototype was absent.

A critical observation of the study was that the more clinical the information to be obtained from a non-clinical source (i.e., a layperson), the more useful the prototype. For example, medication information is very clinical and patients have difficulty recalling the precise information. For this task, the prototype was effective for overcoming a lack of patient knowledge and providing accurate information to the provider. When information was less clinical, such as patient health history, the prototype did not provide an advantage.

The experimental study was a validation of the design method and idea that secondary users may have a distinct user experience to design for. Overall, the research showed that primary and secondary users may need different views of similar information. This is a challenging design task. Interfaces must be able to transition between these views, which highlights the need for an architecture that meets the needs of both classes of user. Usability evaluations provided insight about configuring the different views and making effective and seamless transitions between them.

Incorporating a secondary user experience as an element of human-computer interaction design on a task-by-task basis is novel. The fact that such an experience can be designed for is innovative. Mobile technologies provide opportunities for patients to participate more fully in their own healthcare, as long as designs promote better information sharing. The interaction of primary and secondary users should be considered for patient-centered HIT products.

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