Chapter 3.8

Exploring the Technology Adoption Needs of Patients Using E–Health

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ABSTRACT

An extended version of the technology acceptance model (TAM) is applied to study hospital Web sites, one specific area of e-health. In a review of literature, five significant factors from TAM research are identified that are logically related to e-health sites from the user's perspective: usefulness, ease of use, trust, privacy, and personalization. All five factors emerged in the data analysis of 30 participants using a hospital Web site. We discuss the implications of this study for guiding development of effective patient-centered e-health

INTRODUCTION

To design e-health that meets the needs and wants of users, we should consider technology adoption research and user-centered design (UCD) principles.

Research in these areas can help e-health producers and providers to develop a successful UCD strategy. In general, producing high quality, functional, and usable Web sites is a goal for all businesses and services on the Internet, but particular industries and disciplines must develop Web site design strategies that encompass the specific needs and concern of their specific users. Currently, businesses are searching for successful e-commerce models (Noteberg, Christiaanse, & Wallage, 2003). In this chapter, we investigate what user-centered design strategies can be applied to develop effective e-health, using the specific example of a hospital Web site. We review the basic premises of the technology acceptance model (TAM) (Davis, 1989) and some of its extensions (e.g., Gefen, Karahanna, & Straub, 2003; Gefen & Straub, 2000; Perea y Monsuwe, Dellaert, & Ruyter, 2004; Wang, Wang, Lin, & Tang, 2003) and apply this to the research in e-health. In synthesizing these two bodies of literature, we develop an approach of experience design for e-health.

"Eighty percent of American Internet users, or some 113 million adults, have searched for information on at least one of seventeen health topics ... Most health seekers are pleased about what they find online, but some are frustrated or confused," (Fox, 2006, pp. ii). Specifically, 22% felt frustrated during their health searches, and 18% felt confused by the information they found online (Fox, 2006). Another study indicates that significant barriers to use of the Internet to find healthcare information remain for some elements of the population, such as those age 60 and older, people with 12 or fewer years of education, and residents of rural communities (Licciardone, Smith-Barbaro, & Coleridge, 2001). To increase the social and practical value of e-health, research needs to first produce answers as to what basic elements make e-health successful to its users.

What are the basic features that individuals search for on the Web? They want to find information and retrieve information easily. They want tailored health information. They want to trust the information. What is a successful e-health model? Using the technology acceptance model (TAM) as a framework, we propose to identify key factors leading to adoption of e-health. Past TAM research (Gefen et al., 2003; Gefen & Straub, 2000; Perea y Monsuwe et al., 2004; Wang, et al., 2003) gives us a starting point to shed light on the role of trust, privacy, credibility, and user perceptions of technology in the dynamic exchange between patients and provider-delivered e-health. In reviewing past research on TAM and UCD, we identified five relevant factors to explore in a case study of 30 participants using a hospital Web site. The five factors are usefulness, ease of use, trust, privacy, and personalization. These are used as sensitizing concepts in a case study to identify why potential users adopt e-health.

PRIOR RESEARCH

Using proven research approaches such as TAM and UCD to investigate patients' adoption of e-health can provide important insights. "The TAM postulates that user adoption of a new information system is determined by their intention to use the system, which in turn is determined by their beliefs about the system" (Wang, 2003, pp.335). In online technology adoption, the TAM model highlights the importance of trust, usefulness, and ease of use from the user's point of view (Gefen et al., 2003; Gefen & Straub, 2000; Perea y Monsuwe et al., 2004; Wang et al., 2003). More specifically, research using TAM in e-commerce has found that trust, privacy, and user perceptions of technology are central elements of online technology adoption (Gefen et al., 2003; Gefen & Straub, 2000; Perea y Monsuwe et al., 2004; Wang et al., 2003).

Popularity of e-health is growing. While the design and development of e-health is not well researched (Ketchum, 2005), searching the Internet for health and medical information is known to be one of the most common activities for e-health users (Akerkar & Bichile, 2004; Fox, 2006). Given that the Internet has altered the way people gain access to health information (Akerkar & Bichile, 2004; Kreps, 2003; Neuhauser & Kreps, 2003), health professionals need to understand how to design e-health using strategies that meet the needs and expectation of Internet users. In this vein, e-health has the potential to produce innovative care models in healthcare (Nash & Gremillion, 2004).

We propose that four TAM-related factors (perceived usefulness, perceived ease of use, trust, and privacy) are highly relevant to the context of e-health. An additional factor, personalization, has been found by UCD research to be a key driver of adoption and use of hospital Web sites, a form of e-health (Gallant, Irizarry, & Kreps, 2007). We review the literature relating to each of these factors in the following sections.

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