Chapter 10
Understanding the Role of User Experience for Mobile Healthcare

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ABSTRACT
This chapter seeks for deeper understanding of the user experience in mobile healthcare settings. It studies physicians’ mobile user experiences with evidence-based medical guidelines and drug information databases with the concept of flow as the research vehicle. The data was collected among all of the 352 users of a mobile medical application. The response rate was 66.5% (n=234). The results demonstrate that it is the orientation and navigation within the system, rather than usefulness and ease of use, in part with perceived challenges, focused attention and learning that lead to positive user experience. This supports the fact that finding relevant pieces of information is essential in the system utilization. The results also provide support for the claim that mobile applications are not only beneficial for patient safety, but they may also improve the computer and professional skills of the physicians. The frequent use of the system was noted to improve physicians’ computer skills, the feeling of being in control of the system, and their perception of the system’s ease of use. Moreover, our findings suggest that learning may play a greater role for knowledge work than often suggested.

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INTRODUCTION

Mobile medical informatics applications (Siau, 2003) have been suggested as enabling convenient access to information for physicians despite the constraints of time and place. These applications seem promising to assist clinicians in managing medical literature and drug information, as well as helping them access relevant information at the point of care (Ebell et al., 1997). These applications could also be used to assist in evidence-based practice in a clinical setting and support the educational needs of physicians (Honeybourne et al., 2006). Moreover, such applications could reduce medication errors (Grasso & Genest, 2001; Dallenbach et al. 2007), and improve the quality of care in general by improving the efficiency and effectiveness of medical decision-making (Sackett & Strauss, 1998; Rothschild et al., 2002).

The application of new technologies in healthcare settings is, however, constantly generating challenges for various segments of the healthcare organization (from all levels of the management to physicians, nurses as well as patients). For example, even if mobile systems seem to be relatively smoothly incorporated into the workflow of physicians (Rothschild et al., 2002), it is by no means guaranteed that the medical staff will use these systems. Positive user experience has been identified as one of the key factors for achieving technology acceptance (Ghani, 1991).

Most research articles that study mobile healthcare information systems seem to focus on what are the information needs of healthcare professionals and/or how much a particular system is being used. Only a few contributions focus on how the usage and needed information affects physicians’ actual work (Fischer et al., 2003). A recent review about the impact of mobile handheld technologies on hospital physicians’ work practices by Prgomet et al. (2009) recognized only 13 such articles. Based on a systematic review they conclude that mobile technologies facilitate five processes: prompt treatment, communication, decision support, medication safety, and access to documentation and information.

Mobile applications may affect physicians’ work by facilitating physicians’ responses to clinical situations (Prgomet et al., 2009). For example, wireless transmission of clinical images to physicians’ mobile devices can improve door-to-treatment times (Adams et al., 2006). Through improved communication mobile applications can provide better care for patients by allowing hospitals a better understanding of patients’ needs and wants (Siau, 2003). In addition, improved communication can support knowledge sharing firstly between hospital personnel, and secondly between hospital units.

The survey conducted by Rothschild et al. (2002) about palmtop drug information guide users suggests that mobile systems may also save time in information retrieval and improve drug-related decision making and they can be relatively easily incorporated into the workflow of physicians. This is important, as it could improve technology acceptance and save time.

The usage of mobile applications has also been found to decrease medication error rates (Grasso and Genest, 2001). For example, access to drug information may reduce medication errors as it is impossible in practice to know all conceivable drug interactions by heart. Thus providing an easy manner to double-check these interactions should indeed help the work of physicians at the point of care.

Mobile devices containing decision making tools and summaries of evidence may improve deeper understanding of evidence-based medicine (Honeybourne et al., 2006) and even reduce patients’ length of stay in hospitals (Sintchenko et al., 2005). Räsänen et al. (2009) argue that healthcare organizations do not only generate new expertise and knowledge but they may also get better at their work via knowledge reuse. Finally, mobile applications used for data collection and access have been found to be very promising for research purposes (Fischer et al., 2003).
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