This article studies physicians’ mobile user experiences with evidence-based medical guidelines and drug information databases through the concept of webflow. Data was collected among the 352 users of a mobile medical application. The response rate was 66.5% (n=234). The results demonstrate that rather than usefulness and ease of use it is the orientation and navigation within the system in par with perceived challenges, focused attention, and learning that lead to positive user experience. Finding relevant pieces of information becomes essential in system utilization. The results also support the claim that mobile applications are not only beneficial for patient safety but they may also improve the physicians’ computer and professional skills. Frequent use 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, learning may play a greater role for knowledge work than often suggested. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: Ease of Use; Evidence-based Medicine; Flow; Healthcare Informatics; Medical Knowledge; Usefulness; User Experience

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 infor-
mation, as well as helping them access relevant information at the point of care (Ebell et al., 1997). The applications may 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), 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). Previous research has shown that positive user experience may improve learning (Choi et al., 2007; Ghani & Deshpande, 1994) and consumer behavior (Nel et al., 1999). From the perspective of physicians, positive user experience could mean, for instance, the enhancement of professional skills through learning (Choi et al., 2007). Specifically, in healthcare settings, enhanced professional skills can have a major impact on the quality of patient treatment.

Providing access to medical literature increases the extent to which evidence will be sought and incorporated into patient care decisions (Sackett & Strauss, 1998). This form of decision making is referred to as evidence-based medicine, and it is defined as “the conscientious, explicit and judicious use of the current best evidence in making decisions about the care of individual patients” (Sackett et al., 1996). Providing access to medical literature through a mobile application supports physicians’ knowledge work carried out by the bedside or 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).

Grasso and Genest (2001) demonstrated that access to drug information, i.e. pharmaco-poeias, may reduce medication errors (Grasso & Genest, 2001), as it is impossible in practice to remember or know all conceivable drug interactions. Thus, providing a convenient means to double-check these interactions should indeed help physicians. The survey conducted by Rothschild et al. (2002) with palmtop drug information guide users suggests that mobile systems may save time in information retrieval and improve drug-related decision making.

There are still relatively few scientific studies on the actual use of mobile medical applications (Fischer et al., 2003). This article focuses on accessing medical literature, in particular evidence-based medical guidelines and electronic pharmaco-poeias. It aims at exploring the actual user experiences perceived by physicians in using such mobile applications.

The article is organized as follows: Section 2 describes the concept of flow for measuring user experience. Section 3 introduces the research method and the system under investigation, and section 4 describes the key research results from the survey. Finally, section 5 discusses the results and section 6 draws conclusions and lays out the limitations on the findings.

BACKGROUND

In his visionary book, Csikszentmihalyi (1977) describes the construct of flow as “the holistic sensation that people feel when they act with total involvement”. Flow has been suggested for studying consumer behavior in the context of web-based electronic commerce (Hoffman & Novak, 1997). Hoffman and Novak (1996) describe flow as being a state which occurs when navigating in the Web and which is intrinsically enjoyable, self-reinforcing and
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