

Chapter 1

Review of the Consumer Perspective Framework for Healthcare Applications

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ABSTRACT

Cummings, Borycki, and Roehrer (2013) developed a Consumer Perspectives Framework that identified a range of consumer-related issues and concerns that should be considered when downloading and using healthcare applications for mobile phones. The framework identifies data-related issues with mobile applications, such as ownership, location, completeness, corporate use, storage, and privacy. This chapter documents research undertaken in confirming the Consumer Perspectives Framework. Finally, the authors propose a method by which the Consumer Perspectives Framework can be implemented for use by consumers prior to downloading healthcare applications.

INTRODUCTION

The ubiquity of mobile phone accessibility around the world is increasing. Worldwide the number of mobile phones in use grew from fewer than 1 billion in 2000 to around 6 billion in 2012. Recent estimates conclude that over 75% of the world's population have access to a mobile phone (World Bank, 2012). Globally, there has been a rapid rise

in the use of smart phones by consumers with over 1 billion Smart Phones subscribers (Approximately 30% of smartphone users are likely to use wellness apps by 2015, (Bjornland, Goh, Haanaes, Kainu, & Kennedy, 2012) with more than 30 billion mobile applications being downloaded in 2011 (World Bank, 2012).

Along with this increase in penetration, there has been a significant increase in the development

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and deployment of mobile software applications across multiple computing platforms (e.g. smart phones, tablets and laptops). The most popular of these include Apple's iOS and Google's Android software. Both were designed for use with touch screen mobile devices such as iPhones. Today, there are a plethora of differing types of software applications that have been made available for use with the iOS and Android platforms. Software applications written for mobile or smart phones serve a range of purposes and uses, including; business, financial, educational, entertainment, gaming, lifestyle, health and fitness, news, music, photography, productivity, reference, graphics and design, developer tool, medical and health care consumer applications.

More recently, there has emerged significant interest in health care applications written for mobile phones. Mobile phone software applications are of particular interest because of their ability (in some cases) to improve lifestyle habits in well individuals and improve health outcomes in the chronically ill (Katz, Mesfin, & Barr, 2012).

In conjunction with this there has emerged a significant growth in the number of consumers that are downloading these health specific software applications for self-use (Kay, Santos, & Takane, 2011). Research suggests that mobile phone users use differing types of software applications in conjunction with their smart phones and their use of specific software applications may be role dependent. For example, research has found that physicians and other health care professionals tend to use mobile health applications that differ from those used by patients or members of the general public. Physicians and health professionals are more likely to use mobile software applications that provide them with access to references to health care information (e.g. guidelines, information found in journal articles). These applications provide information to health professionals (i.e. they allow health professionals to review evidence-based research) that can be used in their clinical decision making. Unlike

health care consumers that input data into mobile health applications, health professionals are less likely to employ mobile applications in the process of collecting data about patients. This may be because health professionals may perceive there to be privacy and security issues associated with collecting, transmitting and storing patient data via a mobile device (Jones, Hook, Park, & Scott, 2011). As well, mobile phone applications present a potential risk for public health as some software applications have been questioned in regards to their clinical efficacy and other such software applications have been noted to induce technology-induced errors. Technology induced errors are errors made by software/hardware users that "arise from the: design and development of a technology; implementation and customisation of a technology; and interactions between the operation of a new technology and the new work processes that arise from the technology's use" (Borycki & Kushniruk, 2008).

Therefore, even as some software applications have been shown to improve consumer health and wellness, there have emerged concerns about the quality of these applications, the privacy and confidentiality of the information captured by these software applications (Spiekermann & Lorrie, 2009) and the ability of the technology to introduce technology-induced errors (Borycki & Kushniruk, 2008). This has led to calls by some researchers to achieve a balance between patient safety and innovation in mobile application development with the intent that no harm should occur to the general public (Barton, 2012) and for a deep integration of consumers' perspectives into the development of applications. More user centric applications for Smart Phones are needed (Jones et al., 2011).

This has led some researchers to develop frameworks that can aid consumers and health professionals to better understand and make decisions regarding the use of the technology. For example, researchers such as Cummings, Borycki and Roehrer (2013) have identified a number of

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