Chapter 3
The Role of Perceived Usefulness and Attitude on Electronic Health Record Acceptance

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ABSTRACT

Information and communications technologies are a significant component of the healthcare domain, and electronic health records play a major role in it. Therefore, it is important that they are accepted en masse by healthcare professionals. How healthcare professionals perceive the usefulness of electronic health records and their attitudes towards them have been shown to have significant effects on the overall acceptance in many healthcare systems around the world. This paper investigates the role of perceived usefulness and attitude on the intention to use electronic health records by future healthcare professionals using polynomial regression with response surface analysis. Results show that the relationships between these variables are more complex than predicted in prior research. The paper concludes that the properties of the above determinants must be further investigated to clearly understand: (i) their role in predicting the intention to use electronic health records; and (ii) in designing systems that are better adopted by healthcare professionals of the future.

INTRODUCTION

The use of information and communications technology (ICT) in healthcare has become a significant aspect of the global healthcare agenda (Hackl, Hoerbst, & Ammenwerth, 2011; Protti & Johansen, 2010; Protti, Johansen, & Perez-Torres, 2009). Around the world, there are various approaches of implementing Health Information Technology (HIT), and electronic health records (EHR) are a significant component of this exercise, especially in patient information management (Hackl et al., 2011). Although most technological challenges have already been tackled, EHRs are yet to be fully integrated with the healthcare delivery process, and countries like Australia, New Zealand, Singapore, Denmark, Canada, USA and UK are investing significantly in this integration process. As a result of these efforts, the interaction with EHRs is bound to become a considerable part of a healthcare professional's (HCP) daily activities, and access to EHRs will be a critical requirement as more of the administrative and clinical processes are handled through EHR systems (Bramble et al., 2010). If adopted en masse by both HCPs and patients, EHRs and related technologies promise enviable benefits to healthcare delivery (Buntin, Burke, Hoaglin, & Blumenthal, 2011; Jha et al., 2009). However, HIT in general, and EHRs in particular, have suffered significant drawbacks due to dissatisfaction amongst HCPs (Hackl et al., 2011), which remains a significant barrier for the proliferation of EHRs in the care delivery process. Tackling this problem is both a timely and complex undertaking, and there is a need for studies that thoroughly identify the factors contributing to technology acceptance in the healthcare domain (Buntin et al., 2011).

Past studies on technology adoption have shown that adoption of EHRs is not as high as expected (Bramble et al., 2010; Ford, Menachemi, & Phillips, 2006; Gans, Kralewski, Hammons, & Dowd, 2005; Jha et al., 2009; Rao et al., 2011). Several reasons are said to be contributing factors for the low adoption and these have been clustered into eight categories by Boonstra and Broekhuis (Boonstra & Broekhuis, 2010): financial, technical, time, psychological, social, legal, organisational, and change process. According to Boonstra and Broekhuis, physicians have concerns regarding the use of EHRs that are based on their personal issues, knowledge, and perceptions. The perception of what an EHR system can deliver and the HCPs' attitudes towards it can significantly contribute to the acceptance of the system (Chau & Hu, 2002a). In past studies, this relationship has been considered to be linear and conclusions have been drawn accordingly about their significance in system adoption. With the development and availability of new technologies, however, they may be more complex than what was previously known. In regards to the intention to use EHR systems by future HCPs', this paper investigates the role played by perceived usefulness and attitudes towards EHRs as determinants. As a measure of each predictor and the dependent, the results of a quantitative survey conducted involving medical, nursing and health students from three education institutions in Queensland, Australia are utilised.

In what follows, first, a background on technology acceptance research and its role in the healthcare domain is discussed. Next, details pertaining to the theoretical foundations that underpin the hypotheses of the study are presented. Then, the details of the method employed in the study are given followed by the results and data analysis. The paper concludes with a discussion and conclusion, which summarizes the findings, identifies the limitations and makes recommendations for future work.

BACKGROUND

The use of ICT in the healthcare domain is gaining increasing importance around the world with the advancement of information systems and eHealth technologies (Meier, Fitzgerald, & Smith, 2013). In Australia, for example, the launch of the Personally Controlled Electronic Health Record

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