From E-Prescribing to Drug Management System: Impacts of Stress on Usage Continuance

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ABSTRACT

This study focuses on user reactions to the replacement of an information system they had been using. More specifically, a survey of physicians involved in the transition from an e-prescribing system to a new integrated drug management system was conducted. Data about physicians’ level of stress induced by the system transition, satisfaction with the new system, and intention to continue to use the system, were collected as well as system usage logs before, during, and after the transition. Results indicate that physicians experiencing higher level of stress used the new system less during the transition as well as during the two months post-transition than their counterparts who reported lower level of stress. Although satisfaction with the new system was positively related to physicians’ intention to use, it was not significantly related to actual usage. A discussion of the results and their implications for research and practice concludes the paper.

KEYWORDS

Behavioral Intention to Continue to Use, Longitudinal Study, Physicians, Satisfaction, Stress, Technology Acceptance

INTRODUCTION

Decades of research results contributed to enhance our understanding of the antecedents and dynamics of user acceptance and use of Information Technology (IT). Currently, more often than not, new IT implementations are replacement of older systems. User reactions during the transition to a new IT is thus an important phenomenon although overlooked in extant literature. Indeed, while much research has investigated healthcare professionals and physicians’ reactions to new IT implementation (see Gagnon et al., 2015 for a review), little is known about users’ reactions when transitioning to a new system.

Information Technology changes require users to adjust themselves or modify their working processes and usage pattern of the technology. Many upgrades do not involve unlearning a work process fully but require learning where the system functions are relocated or how the functions have changed. Radical changes however require significant changes in the elements of an IT platform and associated work processes. Such transitions bring major disruptions to users’ work routines. This implies significant changes in users, their work processes and in their IT use habits (Beaudry & Pinsonneault, 2005). This is both shocking and stressful for individuals as they try to cope with the new system requirements (Bala & Venkatesh, 2013). Depending on various factors, such as the

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magnitude of changes in business processes and technology platforms, the duration of this phase might range from a month to a year or more (Bala & Venkatesh, 2013).

While earlier studies examined users’ acceptance and use of IT implemented as replacement of paper-based systems, nowadays most studies examine users’ reactions to a new IT implemented as a replacement to an older one. Most of these studies however do not take into account usage of the previous system while examining users’ reactions to the new IT being implemented whereas studies on usage continuance typically study antecedents of continuous use of an existing system. As a result, we do not know if acceptance and use of the previous IT – the IT that is being replaced - influences acceptance and use of the new IT during and after the transition. As such, this study seeks to shed light on this phenomenon by investigating whether usage level of the previous IT along with satisfaction with the new system and stress experienced during the transition period are related to usage of the new IT. This longitudinal study thus investigated the relationship between physicians’ stress and satisfaction experienced during the transition from an e-prescribing system to a new drug management system and their actual system usage during a four-month period including two months post-implementation.

LITERATURE REVIEW

While a number of studies have focused on various antecedents of IT use (e.g., Taylor & Todd, 1995; Venkatesh, Morris, Davis & Davis, 2003), the bulk of studies focusing on user acceptance of IT conducted over the last decades stops at users’ behavioral intention to use. Others have examined the drivers of intention to continue to use (e.g. Bhattacherjee, 2001). Recently, more studies have examined the triggers of continued use (e.g., Limayem, Hirt & Cheng, 2007; Venkatesh et al., 2003), extended use (Hsieh, Rai & Mark, 2008) or effective use (Burton-Jones & Grange, 2012). While prior research has significantly contributed to further our understanding of user acceptance and use of IT – despite a few exceptions (e.g., Keil, Beranek & Konsynski, 1995; Sicotte et al., 2009) – it largely focuses on users’ reactions to a new IT without taking into account usage of the prior system – the one that has been replaced– and rather focuses on other triggers expected to lead individuals to use the new technology.

Transitions, “the process of change between one previously established context and another, and adaptation to new contextual norms and outcomes that ensue” (Mikal, Rice, Abeyta & DeVilbiss, 2013) are frequent over the course of human beings’ life. Individuals go over transitions in their personal life, family, career, and social life among others. Mikal et al’s (2013) results indicate that transitions of all kinds are commonly accompanied by negative emotions and increased stress. Furthermore, their results show that individuals experience stress even when transitions are positive, anticipated, and voluntary.

Although it could be expected that transitioning from an older computer-based system to a new one may be easier than the conversion from a paper-based system to a computer-based system, extant literature suggests otherwise. For instance, Abramson et al (2012) conducted interviews with 19 physicians who transitioned from an older electronic health record system (EHR) to a new one. Their results indicate that while ambulatory care practitioners’ overall satisfaction increased following the implementation of the new EHR, their ability to perform clinical tasks decreased significantly. Zandieh et al (2012) carried out two cross-sectional surveys of ambulatory care practitioners transitioning to a new EHR. The pre-survey took place approximately one year prior to the transition and the post-survey was distributed approximately three months after the implementation of the new system. Their results indicate that practitioners’ overall satisfaction increased with the new EHR while their ability to perform clinical tasks decreased significantly. In addition, Pfoh et al’s (2012) 197 post-transition survey respondents reported software adaptation-related stress as a moderate to major problem.
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