Chapter 5.14
The Role of Internet Self-Efficacy in the Acceptance of Web-Based Electronic Medical Records

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ABSTRACT

The technology acceptance model (TAM) stipulates that both perceived ease of use (PEOU) and perceived usefulness (PU) directly influence the end user's behavioral intention (BI) to accept a technology. Studies have found that self-efficacy is an important determinant of PEOU. However, there has been no research examining the relationship between self-efficacy and BI. The studies on the effect of self-efficacy on PU are also rare, and findings are inconsistent. In this study, we incorporate Internet self-efficacy (ISE) into the TAM as an antecedent to PU, PEOU, and BI. We conducted a controlled experiment involving a Web-based medical record system and 86 health care participants. We analyzed both direct and indirect effects of ISE on PEOU, PU, and BI using hierarchical regressions. We found that ISE explained 48% of the variation in PEOU. We also found that ISE and PEOU together explained 50% of the variation in PU, and the full model explained 80% of the variance in BI.

INTRODUCTION

Application service provision (ASP) — a model of distributing software services over the Internet — has shown its advantages over the traditional model of information technology (IT) deployment. The expected benefits include the reduced cost of technology ownership, the reduced time to market, and the reduced risks with software deployment.

Nevertheless, the growth of the ASP business has been comparatively slow. In response to the situation, many researchers (Jayatilaka, Schwarz, & Hirschheim, 2002; Peterson & Fairchild, 2003; Susarla, Barua, & Whinston, 2003) examined its ensuring factors. Along the same line of inquires, this study attempts to understand the acceptance issue from the end-user perspective and searches for guidance on methods and effective interventions to promote the adoption of the ASP model.

Understanding user acceptance behavior is important for several reasons. First, it is the end users who use the technology in their work on a daily basis. Any decision that changes their work behavior should consider their willingness to adopt the change. Empirical evidence has shown that the technology adoptions involving end users were more successful than those without (Chau & Hu, 2002; Lederer, Maupin, Sena, & Zhuang, 2000). Second, only the end-user acceptance can ensure a potential long-term continuous adoption (Bhattacherjee, 2001). This is particularly crucial to the ASP adoption since most ASPs are operated on short-term renewable contracts.

In the technology adoption literature, the technology acceptance model (TAM) by Davis (1989) is one of the most widely applied models (see Ma & Liu, 2004, for a meta-analytical survey). It has received extensive empirical support through validations, applications, and replications. Compared with competing models, the TAM is believed to be more parsimonious, predicative, and robust (Venkatesh, 2000). However, the TAM has been criticized for being less informative in understanding usage behavior (Taylor & Todd, 1995). Accordingly, researchers have attempted to extend the TAM by embedding it into a nomological network of other antecedents and consequences. To this end, a few researchers appeal to cognition theories and emphasize the importance of self-efficacy.

The notion of self-efficacy refers to beliefs about individuals' capabilities of performing a certain task (Bandura, 1977). Numerous studies have found that self-efficacy is an important determinant of perceived ease of use. For example, Venkatesh (2000) found that computer self-efficacy was one of the main factors that affect ease of use. Agarwal, Sambamurthy, and Stair (2000) defined software-specific self-efficacy and had a similar finding. However, currently there is no research, to the best of our knowledge, testing the relationship between self-efficacy and behavioral intention (to use an information technology). The impact of self-efficacy on perceived usefulness is also less known, and findings are inconsistent. The goal of this paper is to fill in this gap. In particular, we extend the TAM by considering Internet self-efficacy (ISE) as an antecedent to perceived ease of use, usefulness, as well as behavioral intention in the context of accepting Web-based electronic medical records, and investigate how such an extension affects our understanding about end-user acceptance behavior.

The rest of this paper is outlined as follows. In the next section, we review the literature related to the TAM. In "Research Hypotheses," we present our research model and develop research hypotheses. In the section after that, we describe our research design, including research methodology, experiment procedure, and instrument validation. In "Data Analysis," we perform data analysis and show test results. Finally, we discuss the results and draw conclusions.

TECHNOLOGY ACCEPTANCE MODEL

There are numerous perspectives from which one studies user acceptance and usage behavior of information technologies. Among them, the TAM by Davis (1989) is a more popular one. The TAM is grounded in the theory of reasoned action (Fisherbein & Ajzen, 1975). It stipulates a nomological network of three constructs (Figure 1) — perceived usefulness (PU), perceived ease