

Chapter XV

The Impact of Computer Self-Efficacy and System Complexity on Acceptance of Information Technologies

Bassam Hasan

The University of Toledo, USA

Jafar M. Ali

Kuwait University, Kuwait

ABSTRACT

The acceptance and use of information technologies by target users remain a key issue in information systems (IS) research and practice. Building on past research and integrating computer self-efficacy (CSE) and perceived system complexity (SC) as external variables to the technology acceptance model (TAM), this study examines the direct and indirect effects of these two factors on system eventual acceptance and use. Overall, both CSE and SC demonstrated significant direct effects on perceived usefulness and perceived ease of use as well as indirect effects on attitude and behavioral intention. With respect to TAM's variables, perceived ease of use demonstrated a stronger effect on attitude than that of perceived usefulness. Finally, attitude demonstrated a non-significant impact on behavioral intention. Several implications for research and practice can be drawn from the results of this study.

INTRODUCTION

In today's highly competitive and global markets, businesses continue to make considerable investments in information systems (IS) and computer

technologies as means to increase productivity, maintain their competitiveness, and provide their customers with better and faster service. However, the achievement of these benefits is contingent, in part, on the extent to which users are willing

to accept and utilize the systems to perform their daily tasks. While much research has addressed systems acceptance, reported results have been mixed and inconclusive. As a result, there is a need for additional research to provide further insights into factors that can facilitate or hinder an individual's decisions to accept or reject information systems (Chau, 2001; Agarwal & Prasad, 1999).

Among the various theoretical models utilized in IS acceptance research, the technology acceptance model (TAM) (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989) has enjoyed widespread recognition over other models (Mathieson, 1991). TAM models IS acceptance behavior as a function of users' beliefs about the usefulness and ease of use of a target system. Replication and review studies of TAM have confirmed its robustness and reliability to predict and explain IS acceptance behavior (Legris, Ingham, & Colletette, 2003; Mahmood, Hall, & Swanberg, 2001; Ma & Liu, 2004). TAM was successfully used across a wide range of computer systems and user groups and continues to be used studying newer technologies such Internet and wireless technologies (Hsu & Lin 2008; Liu et al., 2008).

While TAM provides a basis for capturing the effects of external factors on users' internal beliefs of usefulness and ease of use (Davis, 1989), the impact of external factors on TAM's core variables received little research attention in past research (Hu, Chau, Sheng, & Tam, 1999; Thong, Hong, & Tam, 2002) and most studies of external factors in the context of TAM have lacked a clear pattern with respect to the choice of external variables (Legris et al., 2003). Accordingly, several researchers have suggested that further research is needed to study additional external variables and examine their effects on TAM's constructs and acceptance behavior (Agarwal & Prasad, 1999; Legris et al., 2003; Thong et al., 2002; Venkatesh & Davis, 1996).

This study aims to fill the aforementioned void and aims to examine the impact of external

variables on TAM and IS acceptance. Specifically, study attempts to extend prior research by incorporating two factors, namely perceptions of computer self-efficacy and perceived system complexity, as external variables affecting TAM's core constructs. Thus, the present study hypothesizes and empirically tests relationships among the following variables: computer self-efficacy, perceived system complexity, perceived usefulness, perceived ease of use, attitude, and behavioral intention to use a target system.

RESEARCH MODEL

The research model underlying the present study (Figure 1) was based on the technology acceptance model (TAM) and relevant research. The research model incorporates computer self-efficacy (CSE) and perceived system complexity, in a single study, as direct determinants of user beliefs about usefulness and ease of use. Moreover, consistent with TAM, the research model suggests indirect relationships among the two external factors, attitude, and behavioral intention.

Computer Self-Efficacy

Self-efficacy refers to people's judgments about their capabilities to organize and execute courses of action necessary to perform a given task. Self-efficacy influences what people choose to perform, how much effort they are ready to exert, and how long they will persist to overcome obstacles (Bandura, 1986; Gist, 1987). Self-efficacy was introduced by Bandura (1986) as is a key concept in the social cognitive theory (SCT). According to SCT, individuals with stronger efficacy beliefs are believed to expend more effort and tend to be more persistent in their efforts than those with lower efficacy beliefs.

The concept of self-efficacy has been extended to various domains such as mathematics, sports, and computing. Adapted from the general concept

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