Chapter 3.16
Examining the Effects of Computer Self-Efficacy and System Complexity on Technology Acceptance

Bassam Hasan
The University of Toledo, USA

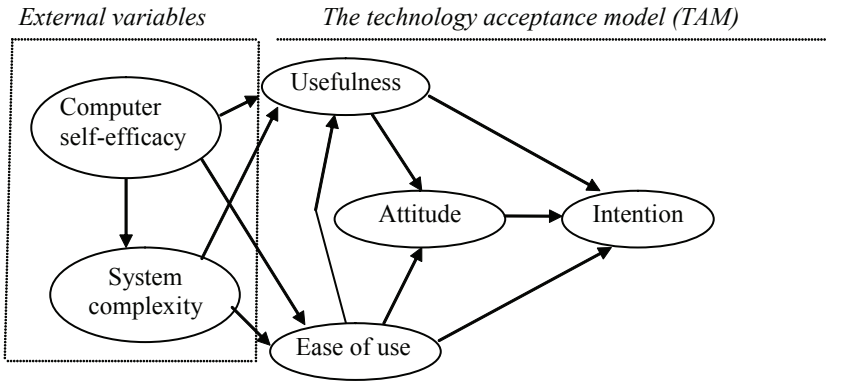
ABSTRACT

Despite the prevalence of computing in all aspects of society, some computer systems may not be fully accepted by their intended users or become underutilized. Thus, acceptance and use of information technologies remain a paramount issue in information systems (IS) research and practice. Extending previous research by integrating computer self-efficacy and perceived system complexity as external variables to the technology acceptance model (TAM), this study examines the direct and indirect effects of these two factors on system acceptance and use. The results indicated that computer self-efficacy and system complexity had significant direct effects on perceived usefulness and perceived ease of use as well as indirect effects on attitude and behavioral intention. However, the effect of perceived ease of use on attitude was stronger than that of perceived usefulness. In turn, attitude demonstrated a non-significant impact on behavioral intention. These findings highlight several implications for research and practice.

INTRODUCTION

Organizations continue to make considerable investments in information systems and computer technologies as means to reduce operational costs, increase productivity, and maintain their competitiveness. However, the benefits that organizations can reap from investments in computer systems are

Figure 1. TAM and research model



influenced by the extent to which users are willing to accept and use these systems. This productivity paradox has heightened interest in understanding factors affecting systems' acceptance and utilization. While studies of systems' acceptance and use abound in the IS literature, some of the reported results have been mixed and inconclusive. As a result, there is a need for additional research aimed at exploring additional factors that can facilitate or hinder systems' acceptance and use (Agarwal & Prasad, 1999; Chau, 2001).

Among the various theoretical models of IS acceptance, the technology acceptance model (TAM) (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989) has shown strong empirical advantage over other models (Mathieson, 1991) and was successfully used across a wide range of computer systems and user groups. TAM models IS acceptance behavior as a function of users' beliefs about the usefulness and ease of use of a given system. Replication and review studies of TAM have confirmed its robustness and reliability to predict and explain IS acceptance behavior (Legris, Ingham, & Collerette, 2003; Ma & Liu, 2004; Mahmood, Hall, & Swanberg, 2001).

While TAM provides a basis for mapping the effects of external factors on users' internal beliefs of usefulness and ease of use (Davis, 1989), little research attention has been given to studying the impact of external factors on TAM's core variables (Hu, Chau, Sheng, & Tam, 1999; Thong, Hong, & Tam, 2002). Moreover, 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). Therefore, there is a need for research to expand TAM to include additional variables and examine how those factors influence TAM's constructs and eventual acceptance behavior (Agarwal & Prasad, 1999; Legris et al., 2003; Thong et al., 2002; Venkatesh & Davis, 1996). Accordingly, the main objective of this study is to examine the impact of external variables on TAM and IS acceptance.

Based on the theoretical perspectives of TAM and social cognitive theory (SCT) (Bandura, 1986) and integrating past empirical findings, the present 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