



Understanding mandatory IS use behavior: How outcome expectations affect conative IS use



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ARTICLE INFO

Keywords:

Outcome expectations
Conative IS use
Enterprise systems
Social cognitive theory

ABSTRACT

Implementing enterprise systems (ES) suffers from a high failure rate despite their promised benefits. A commonly cited reason for ES implementation failures in the context of mandatory use is end users' unwillingness to adopt or use systems or their sabotage thereof. Considering that expectations toward using newly implemented systems may promote positive user behavior, we examine the effects of outcome expectations on information systems (IS) use activity from the viewpoint of social cognitive theory. In addition, we propose a new surrogate variable for IS use activity in the mandatory use context, conative IS use, which is conceptualized as a second-order aggregate construct comprising three dimensions: immersion, reinvention, and learning. Conative IS use here refers to IS use that is proactively motivated by intentional and personal causes. The empirical results, based on data collected from 208 ES users, are found to support the conceptualization of the proposed variable. They also reveal that conative IS use is positively affected by outcome expectations. The findings of this study thus imply that the appropriate management of expectations may promote IS use behavior in the mandatory use context.

1. Introduction

Organizations today are continuously increasing investment in information systems (IS) to improve performance through rapid decision-making, organizational flexibility, and strategic agility. Enterprise-wide IS including enterprise systems (ES) and enterprise resource planning (ERP) systems have been involved in such investment. ES integrate information flow across internal business unit boundaries and with external business partners such as suppliers and customers. This integrated information allows the effective and efficient control of all functions of such business units (Hustad & Olsen, 2014; Ngai, Law, & Wat, 2008).

In practice, however, ES have been overshadowed because of the high implementation failure rate, while their anticipated performance has rarely been realized (Gattiker & Goodhue, 2005; Staehr, 2010). Indeed, Koch (2002) estimated that 40% of ES projects do not achieve their expected performance enhancements. Similarly, Panorama Consulting Solutions (2016) recently reported that 60% of organizations that have implemented ES within the past year realize less than half of their projected benefits, with 16% of respondents stating that they fail to realize any measurable benefits at all.

Because the implementation of ES is technically complex, it is often

believed that ES failures are due to technical problems. However, it has been widely reported that the factors leading to ES failures are not solely limited to technical problems. Rather, the interactions among people, tasks, the environment, and technology can also cause problems (Kwahk & Ahn, 2010; Kwahk & Lee, 2008; Ngai et al., 2008; Saraf, Liang, Xue, & Hu, 2013; Yusuf, Gunasekaran, & Wu, 2006).

A commonly cited reason for ES implementation failures in the context of mandatory use is end users' unwillingness to adopt or use systems or their sabotage thereof (Barker & Frolick, 2003; Krasner, 2000; Scott & Vessey, 2002; Umble & Umble, 2002; Wah, 2000). Despite the successful development of a system, negative user acceptance encourages its routine, simplistic system use, which causes dissatisfaction in the organization (Nah, Tan, & Teh, 2004). As a result, organizations rarely achieve the expected performance when introducing ES.

When systems such as ES are introduced, users encounter a number of consequences that they subjectively interpret and understand (Griffith, 1999; Pinsonneault & Rivard, 1998; Weick, 1990). That is, users' responses to systems depend on their appraisal of those systems' expected consequences. Thus, the appropriate management of users' expectations plays an important role in successful system implementation and may even be more important than user involvement or management support (Ginzberg, 1981). Hence, we need to

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understand how expectations drive end users' positive IS use behavior, ultimately leading to successful system implementation (Bhattacharjee, 2001; Chang, Chang, Ho, Yen, & Chiang, 2011; Compeau & Higgins, 1995; Compeau, Higgins, & Huff, 1999; Lin & Huang, 2008).

Against this backdrop, we examine the role of outcome expectations for achieving the successful use of ES based on social cognitive theory. In particular, this study examines how different types of outcome expectations—performance-related and personal outcome expectations—affect users' ES use behavior differently. We also analyze the comparative model, the dependent variable of which is replaced with intention to use ES, to gain insight into how intention to use ES and the actual use of ES are affected by the two above-mentioned types of outcome expectations.

Another issue addressed in this paper is the development of an appropriate variable to represent IS use behavior in mandatory contexts. Much prior research on the adoption of new information technology (IT) has been carried out on the basis of voluntary adoption by individual users; in such studies, users' intention to use IS and subsequent usage behavior are exploited as dependent variables (e.g., Adams, Nelson, & Todd, 1992; Davis, Bagozzi, & Warshaw, 1989; Davis, Bagozzi, & Warshaw, 1992; Lin & Huang, 2008; Taylor and Todd, 1995; Venkatesh & Davis, 2000). However, enterprise-wide IS—including ES—are used in a mandatory way in most cases, meaning that users are forced to use the system to carry out their work tasks (Goodhue & Thompson, 1995; Seddon, 1997). Therefore, whether intention to use is an appropriate surrogate variable for actual system use behavior has been the subject of ongoing debate (Brown, Massey, Montoya-Weiss, & Burkman, 2002; Karahanna, 1999; Rawstorne, Jayasuriya, & Caputi, 1998; Rawstorne et al., 2000; Seddon, 1997; Singletary, Akbulut, & Houston, 2002). Further, usage frequency or duration is unsuitable in mandatory use environments (Doll & Torkzadeh, 1998; Lassila & Brancheau, 1999; Straub, Limayem, & Karahanna-Evaristo, 1995), as greater use does not necessarily imply increased individual or organizational impact from new IS. For this reason, some researchers have suggested the need to develop a new dependent variable to replace intention to use or simple system usage (Barki, Titah, & Boffo, 2007; Benbasat & Barki, 2007; Burton-Jones & Straub, 2006; Hsieh, Rai, & Xu, 2011).

To bridge this gap in the body of knowledge on this topic, our study suggests a new surrogate variable for system usage behavior in the context of mandatory use. We design a new construct, conative IS use, to represent suitable user acceptance behaviors in the context of mandatory use. Conative IS use is defined as the use of IS that is proactively motivated by intentional and personal causes. Along with affection and cognition, the mental factor of conation has long been studied by psychologists (Hilgard, 1980; Reitan & Wolfson, 2000). Conative use is distinct from ordinary use, since it reflects more intentional, deliberate, goal-oriented, motivational, and proactive use behaviors (Huitt, 1999). Even in mandatory situations, it is reasonable to assume that users can choose whether to use IS in a conative manner. Further, it is important for companies adopting new IS to encourage their employees to use them in a conative way to maximize effectiveness. The growing complexity of today's enterprise-wide IS has resulted in greater user discretion over how, rather than how much or whether, IS are used (Fadel, 2012). Hence, conative IS use, which represents high quality and depth of IS use, is a suitable construct for explaining use behavior for complex, mandatory, enterprise-wide systems.

2. Theoretical background

2.1. Outcome expectations

Social cognitive theory (Bandura, 1986) has been widely used to understand individual motivation, thought, and behavior in various situations. In this theory, the reproduction of an observed behavior is determined by the interaction of environmental influences, cognition/

personal factors, and behaviors. Bandura (1986) called this relationship “triadic reciprocal determinism.” According to this theory, the individual does not simply react to environmental events but rather acts to positively create and change his or her environment. In turn, this action influences his or her cognition and how he or she would change the environment; that is, the determined behavior affects the individual's cognitive process and the environment. Consistent with this, Bajaj and Nidumolu (1998) suggested a feedback model between IS use behavior and perceived ease of use. They empirically reported that as IS use behavior increases, so does the perceived ease of use of IS. Similarly, expectations about the benefits of IS use change continuously according to the user's experience of IS use. This expectation change affects the level of IS use, which leads to diverse perceptions of the benefits of IS use.

While social cognitive theory involves various constructs, this study focuses on the role of outcome expectations. Outcome expectations imply expectations at the level of outcomes from behavior, which are among the most important cognitive factors for explaining user behaviors in IS research (Compeau & Higgins, 1995; Compeau et al., 1999). Several recent studies have reported that outcome expectations significantly affect individual behaviors such as computer use, Internet use, knowledge sharing, and organizational commitment (Hsu & Chiu, 2004; Luarn and Lin, 2005; Stone and Henry, 2003). The results from these studies confirm that outcome expectations are important cognitive factors that affect user behaviors.

In a mandatory IS use context, it is possible to have effective IT without a positive attitude or satisfaction on the part of users (Melone, 1990). However, a negative attitude may lead to seriously undesirable consequences in this type of context. Such attitudes can negatively affect an individual's perception of his or her organization and work environment (Zuboff, 1988). Thus, the role of outcome expectations should be examined to better explain a user's IS acceptance behavior in the mandatory IS use environment.

2.2. Conative IS use and its conceptualization

Predicting behavior based on intention may be unsuitable in the context of mandatory use because the relationship between intention and actual behavior is valid only when the behavior is volitionally controlled (Ajzen & Fishbein, 1980). In other words, behavioral intention may not lead to actual behavior in mandatory use contexts (Brown et al., 2002; DeLone & McLean, 1992, 2003; Karahanna, 1999; Nah et al., 2004; Rawstorne et al., 1998, 2000; Singletary et al., 2002).

While users only have the freedom to choose how to accept the innovation when IS use is mandatory (Leonard-Barton, 1988), users who do not accept the innovation sincerely can resist and obstruct the implementation of new IS (Kimberly, 1987; Leonard-Barton, 1988; Markus, 1983; Zuboff, 1988). In a mandatory use environment, users thus have no choice but to use the system for their work; hence, measuring system usage performed in voluntary contexts would be misleading in the context of mandatory adoption. Since the effectiveness of IS usage in mandatory contexts depends largely on the organization's aims and objectives (Adamson & Shine, 2003), simple IS usage characteristics such as frequency and duration may be ineffective indicators of the success of IS implementation. Thus, we propose a new surrogate variable for IS acceptance, conative IS use, to replace conventional dependent variables such as intention to use or mechanical IS usage.

Psychology researchers have identified and studied three mental factors: cognition, affect, and conation (Huitt, 1999, 2001; Tallon, 1997). Cognition implies the process of coming to know and understand; it includes the processes of encoding, storing, processing, and retrieving information. Affect implies the emotional interpretation of information, knowledge, or perception. That is, it reflects one's positive or negative attachment to objects, including people, products, and ideas. Conation relates to the connections between cognition and affect, on the one hand, and behavior, on the other. This reflects the

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