International Journal of Information Management 37 (2017) 400–416

Contents lists available at ScienceDirect

International Journal of Information Management

journal homepage: www.elsevier.com/locate/ijinfomgt

Research Note

The construct of information systems use benefits: Theoretical explication of its underlying dimensions and the development of a measurement scale

Jonghak Sun[a,*], James T.C. Teng[b]

[a] Department of Business Administration, Chonbuk National University, 567 Baekje-daero, Jeonju-si, 54896, Republic of Korea
[b] Department of Information Systems and Operations Management, College of Business Administration, University of Texas at Arlington, P.O. Box 19437, Arlington, TX, 76019, USA

ARTICLE INFO

Keywords:
IS success model
IS use benefits
Construct development
ERG theory
Job Characteristics Theory

ABSTRACT

As a key construct for the IS success model (DeLone & McLean (1992, 2003), information systems benefits for individuals (ISBI) has received considerable attention from researchers over the years. However, much remains to be explored to develop and validate the underlying theoretical dimensions for this crucial construct. Further, a major weakness of the extant research in this area is that most reported studies have been conducted in the context of individual IS application instead of the overall IS in the organization. To fill these gaps in research, we will first present a theoretical conceptualization of the ISBI construct, and then develop and validate a measurement scale for the construct. Drawing from the ERG theory (Alderfer, 1972), Job Characteristic Theory (Hackman & Oldham, 1975, 1976) and other theoretical perspectives, we developed a theory-based TJW framework which consists of three levels: **T**ask performance**, J**ob interaction, and **W**ork enrichment. The nomological validity of the scale was then successfully demonstrated by a partial test of the IS success model using the ISBI measure and a measure of the overall IS use. Finally, we demonstrated the diagnostic power of the construct through an exploratory research model which showed that, while task performance benefits have insignificant effect on satisfaction, both job interaction benefits and work enrichment effects have substantial effects on satisfaction. These study results have thus deepened our understanding on the underpinnings of IS usage behaviors and contributed to the cumulated research on IS success.

1. Introduction

The use of computers for professional practice is now an integral part of everyday work life in organizations. Not surprisingly, the use and success of computer-based information systems has received extensive attention from researchers. In their seminal works, DeLone and McLean (1992, 2003) identified a set of IS success constructs and the relationships among them in a proposed IS success model. As a key construct for the IS success model, information systems benefits for individuals (ISBI) has received considerable attention from researchers over the years. However, many previous studies focus on specific aspects of the benefits, or chose empirical measures for IS benefits with scant attention to theoretical underpinnings of the construct (e.g. Bonner, 1995; Gable, Sedera, & Chan, 2008; Saarinen, 1996; Teng & Calhoun, 1996; Torkzadeh & Doll, 1999). Moreover, many researchers have assessed IS impacts or benefits by simply using the PU (perceived usefulness) scale developed from TAM (Technology Acceptance Model) research (Davis, 1989). This scale, however, has a singular focus on overall job performance, leaving out much of other rich facets of individual benefits such as innovation (Torkzadeh & Doll, 1999), Communication & Collaboration (Mohr, Fisher, & Nevin, 1996; Staples, Hulland, & Higgins, 1999), and Decision Making (Leidner & Elam, 1993; Teng & Calhoun, 1996).

In addition to the above weaknesses, results of many prior studies may be difficult to generalize across populations and contexts (Hess, McNab, & Basoglu, 2014). For example, some studies were conducted in a research context in which one single system in one organization is selected and examined (e.g. Au, Ngai, & Cheng, 2008; livari, 2005; Rai, Lang, & Welker, 2002; Seddon & Kiew, 1994; Seddon et al., 1994Seddon and Kiew, 1994Seddon & Kiew, 1994; Seddon et al., 1994; Yeh & Teng, 2012). This makes it difficult to generalize the overall IS benefits, as the extent and dimensions of ISBI are likely to be different depending on the nature of a particular IS or IT. A user, for example, is likely to perceive an email system as beneficial in terms of speedy communication, in contrast to knowledge or creativity gained through a knowledge management system. Moreover, these studies attempted to measure benefits of systems or applications that were prevalent a few decades before (e.g. Teng & Calhoun, 1996). In order to properly examine

* Corresponding author.
E-mail addresses: nexprince@jbnu.ac.kr (J. Sun), jtteng@uta.edu (J.T.C. Teng).

http://dx.doi.org/10.1016/j.ijinfomgt.2017.04.010
Received 1 December 2016; Received in revised form 26 April 2017; Accepted 26 April 2017
0268-4012/ © 2017 Elsevier Ltd. All rights reserved.

different dimensions of ISBI, we need to include the wider varieties of advanced IS/IT used today by individual users in their daily work in organizations.

In the current study, we will attempt to accomplish three objectives to address these gaps in prior research. First, based on the theoretical lenses of JCT (Job Characteristics Theory) (Hackman & Oldham, 1975), ERG (Existence, Relatedness, Growth) theory (Alderfer, 1972), and other theoretically relevant perspectives, we will go beyond specific benefits and conceptualize ISBI as a multi-dimensional formative construct, comprised of a comprehensive set of three components: Task Performance Benefits, Job Interactions Benefits, and Work Enrichments Benefits. Next, we will develop an instrument to measure the ISBI construct and then validate the scale with data collect from a sample of managers and business professionals. Unlike previous studies which examined benefits from a specific system or application, our empirical study is in the context of the overall corporate IS in an organization. Thirdly, to further demonstrate its content validity as a robust instrument for future research, we will present a research model to relate ISBI to other IS success constructs in a nomological network to partially test DeLone and McLean (1992, 2003)'s IS Success model. Finally, we will demonstrate the diagnostic power of our instrument with a decomposed research model to explore the differentiated effects of the three facets making up ISBI, and see which one of the three types of benefits has the highest and least effect on IS user satisfaction. In this study, therefore, we seek to theoretically explicate the underlying dimensions of ISBI and develop a more in-depth understanding of the IS usage behaviors through the benefits or impact of such behaviors, i.e. the reasons for such behaviors.

2. Literature review

2.1. ISBI as an IS success measure

In their seminal work, DeLone and McLean (1992) identified a set of IS success constructs and the relationships among them in a proposed IS success model. The two researchers also mapped a large number of published studies on a variety of IS success measures to their model. To incorporate advances in the area, the model was updated by them in 2003 (see Fig. 1) to include seven success measures. As shown in Fig. 1 (referred to as D & M Model), four of these success measures: system quality, information quality, service quality, and use, are depicted as independent variables, while the other measures: User Satisfaction, Net Benefits, and Intention to Use, are mainly dependent variable.

Many success measures in the D & M model have been well researched. For example, researchers have identified and developed scales to measure various dimensions of information quality such as relevance, accuracy, currency, content, etc. (e.g. Bailey & Pearson, 1983; Doll & Torkzadeh, 1988; Gable et al., 2008; Ives, Olson, & Baroudi, 1983; Lee, Strong, Kahn, & Wang, 2002; Nicolaou & McKnight, 2006; Nelson, Todd, & Wixom, 2005). For system quality, dimensions such as reliability, flexibility, and ease of use have been examined (Bailey & Pearson, 1983; Barnes & Vidgen, 2001; Gable et al., 2008; Ives et al., 1983; McKeen and Guimaraes, 1997; McKinney, Yoon, & Mariam Zahedi, 2002; Nelson et al., 2005). Research on the use construct has progressed from early emphasis on frequency, duration, intensity (Venkatesh, Brown, Maruping, & Bala, 2008), to more in-depth attributes such as depth, cognitive absorption, deep structure (Burton-Jones & Straub, 2006), number of tasks (Barki, Titah, & Boffo, 2007), and routine vs. innovative use (Li, Hsieh, & Rai, 2013).

However, the net benefit construct needs much further development from researchers (see Table 1). DeLone and McLean stress the importance of Individual Impact (1992) or Net Benefits (2003) and call for further research to capture its complex nature. For the purpose of this study, we will differentiate between individual IS impact and individual IS benefits. While IS impact includes the general effects of IS on individual's work, not all of these effects may be regarded as benefits. Teng and Calhoun (1996), for example, include decision routinization as an IS impact, but this may or may not be considered a benefit by individual employees.

The "net benefits" in D & M model encompasses individual, group, organizational, and even societal benefits from IT use (Larsen, 2003). The researchers stated that, *"rather than complicate the model with more success measures, we prefer to move in the opposite direction and group all the 'impact' measures into a single impact or benefit category called "net benefits"* (DeLone & McLean, 2003, p.19). In this study, we choose to study an individual's perceived benefits from IS use as an instance of such "net benefits", and then define ISBI as follows:

> IS Benefits for individuals (ISBI) refers to the perceived benefits by an individual employee from using the corporate IS/IT in helping to fulfill various facets of his/her work achievements on the job in the context of an organization.

Moreover, a number of prominent researchers on IS success (DeLone & McLean, 2003; Seddon, 1997) have distinguished net benefits from PU. The PU construct is defined as "*the degree to which a person believes that using a particular system would enhance his or her job performance within an organizational context*" (Davis, 1989, p.320 Davis, Bagozzi, & Warshaw, 1989). The PU measure can be understood as an aggregate measure for overall productivity improvement on the job through using IS/IT (Li et al., 2013). This aggregate measure has been utilized extensively in IS success research (Goodhue & Thompson, 1995; Moore & Benbasat, 1991; Rai et al., 2002; Seddon, 1997; Seddon and Kiew, 1994 Seddon & Kiew, 1994; Venkatesh, Morris, Davis, & Davis, 2003; Wixom & Todd, 2005). In an attempt to reconcile DeLone and McLean (1992)'s model and Seddon (1997)'s model, Rai et al. (2002) also used the PU construct from TAM to measure "Individual Impact." While the PU concept emphasizes the ultimate job performance impact in terms of efficiency and productivity (Davis, 1989), ISBI definition refers to the underlying facets of the overall work achievement. In fact, numerous researchers have focused on specific aspects of these benefits, such as decision making (e.g. Hou, 2013; Leidner & Elam, 1993; Teng & Calhoun, 1996), collaborative performance (e.g. Andriessen, 2012; Hsu, Shih, Chiang, & Liu, 2012; Karsten, 2003; Sanders, 2008; Majchrzak, Malhotra, & John, 2005;

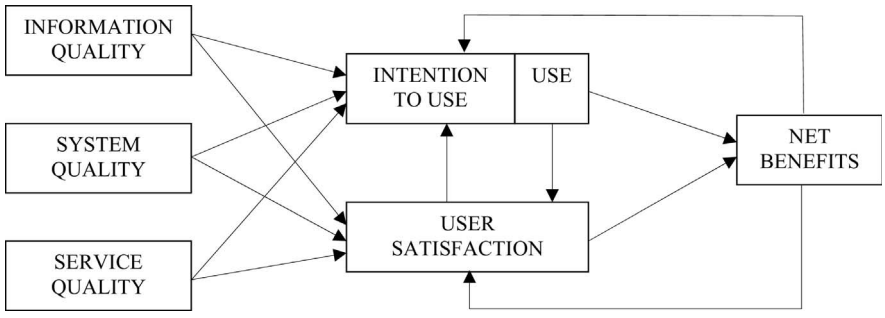

Fig. 1. Updated DeLone and McLean IS success model (2003).

Download English Version:

https://daneshyari.com/en/article/5110790

Download Persian Version:

https://daneshyari.com/article/5110790

Daneshyari.com