Chapter V

Measurement of Perceived Control in Information Systems

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ABSTRACT

The importance of perceptions of control in explaining human behavior and motivation has been identified, investigated, and found to be significant in several disciplines. This study reports on an exploratory investigation assessing perceived control within the information systems domain. A survey instrument was developed based on the research literature to assess perceived control as a multi-dimensional construct. The survey was administered to 241 subjects. The results were analyzed to produce the following five factors that represent a user's perceptions of control when working with an interactive information system: (1) timeframe, (2) feedback signal, (3) feedback duration, (4) strategy, and (5) metaphor knowledge.

INTRODUCTION

While one of the ongoing efforts in information systems (IS) research is an attempt to define the dependent variable in concrete terms, various attempts have produced some widely accepted surrogates (DeLone & McLean, 1992; Keen, 1980). Among these are user satisfaction and system usage, and much

effort has been spent attempting to better understand these concepts (Bailey & Pearson, 1983; Baroudi, Olson, & Ives, 1986; Hu, Chau, Sheng, & Tam, 1999; Igbaria, & Nachman, 1990; Straub, Limayem, & Karahanna-Evaristo, 1995). Though not well established in the IS literature, researchers in other disciplines have linked perceived control to both emotional and behavioral characteristics, such as user satisfaction, that are of interest to IS researchers (Stanton & Barnes-Farrell, 1996). Most research in information systems that has included user perceptions of control has not addressed the perceived control construct from firm theoretical grounds; has not addressed perceived control as a complex, multi-dimensional construct; and/or has not demonstrated consistency in definition or measurement to facilitate comparisons across studies (Kahai, Solieri, & Felo, 1998; Sengupta & Te'eni, 1993). While this research has found perceived control to be related to important constructs such as user satisfaction and task performance, the cumulative impact of these studies is weakened by the difficulties in making comparisons (Kahai, Solieri, & Felo, 1998; Stanton & Barnes-Farrell, 1996). The purpose of the current research is to develop an instrument for assessing perceived control in the information systems domain as a multi-dimensional construct from a theoretical basis that can be used as a common assessment tool, thereby facilitating future cross-study comparisons.

A review of the relevant literature that informed the creation of the instrument appears in the next section. Following the review of the literature, an explanation of the methodology used to create the instrument is provided, along with a description of the methods used to collect data to refine the instrument. The results of principal components factor analysis are then presented to explore the dimensionality of the perceived control construct. These results and the emergent factors are then discussed. Finally, remarks concerning the implications and limitations of the study are presented.

LITERATURE REVIEW

The importance that other disciplines have given perceived control is highlighted by the proposal of Friedman and Lackey (1991) that control is the universal motivator for all human activity. An individual's perception of the control that he or she can exert has been found to be a very strong predictor of both behaviors and emotional outcomes and, therefore, has stimulated a great deal of research in disciplines such as psychology, marketing, and organizational behavior (Fox, Dwyer, & Ganster, 1993; Friedman & Lackey, 1991; Lacey, 1979; Robertson & Powers, 1990; Sargent & Terry, 1998; Skinner, 1995). Perceived control can be viewed as the degree to which a person feels that he or she can impact outcomes in his or her environment through voluntary actions (Lacey, 1979). According to Skinner (1995), "Five decades of research have established [perceived control] as a robust predictor of people's behavior,

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