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An empirical investigation of sources of application-specific computer-self-efficacy and mediators of the efficacy—performance relationship

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Abstract

Integrating theory from research on training, computer self-efficacy (CSE), and motivation, this research validated a model of four factors that contribute to application-specific computer self-efficacy (AS-CSE) formation (previous experience, personality, learning goal orientation and computer anxiety) and three factors that mediate the relationship between AS-CSE and performance (goal level, goal commitment and performance goal orientation (PGO)). Using data from 313 individuals in an introductory computer skills course, the model was validated for database software. Results indicate that previous database software experience, trainee personality and learning goal orientation were positively related to AS-CSE, whereas computer anxiety was negatively related to AS-CSE. Additionally, goal level, goal commitment and PGOs were related to database test performance, and the relationship between AS-CSE and database test performance was also partially mediated by goal level and goal commitment. Implications for research and practice are discussed.

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Keywords: Computer self-efficacy; Computer training; Motivation; Goal setting; Goal orientations; Personality; Computer anxiety

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1. Introduction

Information systems (IS) researchers and organizations have long recognized that training is a critical component to the successful implementation and utilization of information systems (Cheney et al., 1986). As a result, nearly all organizations (96%) have software training programs (Galvin, 2003) and organizations are expected to spend almost \$30 billion on information technology skills training annually by 2006 (IDC, 2002). These initiatives have the common goals of improving skills, knowledge, and task based performance of those being trained. Within the training context, multiple studies have investigated the factors that lead to improved knowledge, skills and performance including those that focus on training mechanisms (cf. Santhanam and Sein, 1994; Compeau and Higgins, 1995a; Yi and Davis, 2001, 2003) and those that focus on trainee characteristics (cf. Sein and Bostrom, 1989; Bostrom et al., 1990; Martocchio and Webster, 1992; Johnson and Marakas, 2000).

Across multiple domains, including the computing domain, research has found that an important trainee characteristic that affects performance is self-efficacy (cf. Gist et al., 1989; Compeau and Higgins, 1995a; Bandura, 1997; Colquitt et al., 2000). Although these studies have provided strong evidence as to the importance of the self-efficacy and performance relationship, the majority of these studies have focused on a limited set of variables and have not investigated the role of computer self-efficacy (CSE) within a framework that integrates the various individual motivation factors through which this relationship occurs. Given the importance of this relationship in the computing context, additional research is needed to understand “the complex mechanisms and relationships that result in increased levels of performance relating to changes in CSE” (Marakas et al., 1998, p. 157). To most effectively investigate this relationship, the model developed should incorporate both affective states as well as more distal traits such as personality (Locke and Latham, 2004). Therefore, the goal of this research was to validate a model of the CSE–performance relationship that integrates both state and trait factors that act as sources of efficacy information and motivation factors that mediate the CSE–performance relationship.

The remainder of the paper is organized as follows. The next section presents an overview of CSE and develops the model. After this, the constructs of interest in the study and the hypotheses are presented. Third, the research context and method are discussed. This is followed by a discussion of the results of the model testing using partial least squares. Finally, the remainder of the paper discusses findings of the study, implications and directions for future research.

2. Background

Computer self-efficacy finds its roots in Social Cognitive Theory (Bandura, 1986) and has been derived from the broader construct of self-efficacy. Self-efficacy “refers to beliefs in one’s capabilities to organize and execute the courses of action required

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