Chapter 2.38
Effectiveness of Computer Training:
The Role of Multilevel Computer Self Efficacy

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INTRODUCTION

The growing sophistication of computer applications and the precipitous decline in computer software and hardware costs have contributed enormously to the increased proliferation of computer technologies at all managerial levels and functional areas. These significant developments also have resulted in substantial increases in the number and diversity of individuals who rely on computers to perform their job activities (Igbaria, Zinatelli, Cragg & Cavaye, 1997). As a result, most organizations are faced with an incessant challenge to provide effective computer training to enable end users to learn the skills necessary for effective use of computer systems. Thus, end-user computer training remains one of the key issues in information systems (IS) research and practice that deserves further examination and better understanding.

End-user computer training has attracted extensive research attention over the past few years (Davis & Bostrom, 1993; Harrison & Rainer, 1992; Johnson & Marakas, 2000; Lu, Yu & Liu, 2003; Simon et al., 1996; Simon & Werner, 1996; Yi & Davis, 2001, 2003). Most of this research activity has focused on identifying factors that contribute to (or hamper) trainees' abilities to learn the skills presented in training (Agarwal, Sambamurthy, & Stair, 2000; Bostrom, Olfman, & Sein, 1990; Simon et al., 1996; Yi & Davis, 2003). This line of research has shown that computer self-efficacy (CSE), one's confidence in one's computing skills, represents a significant determinant of learning performance and other outcomes associated with computer training (Agarwal et al., 2000; Compeau & Higgins, 1995; Gist, Schwoerer & Rosen, 1989; Johnson & Marakas, 2000; Yi & Davis, 2003).

However, a review of prior research concerning computer self-efficacy and computer training

reveals two significant limitations. First, most prior studies have evaluated computer learning performance in general terms without distinguishing between near-transfer and far-transfer learning (Haskell, 2001). Since the type of learning that a trainee accomplishes in training affects the extent to which he or she can apply and extend the newly learned skills (Cormier & Hagman, 1987), it is important to understand factors that influence each type of learning. Such understanding provides valuable practical implications for planning and administering computer training. Moreover, in addition to learning, effective training should improve trainees' reactions to training (Kirckpatrick, 1959). Hence, it is important to assess reactions as an outcome in computer training.

Second, although CSE is a multilevel construct that operates at a general and application level (Agarwal et al., 2000; Johnson & Marakas, 2000; Marakas, Yi, & Johnson, 1998; Yi & Davis, 2003), most previous studies have focused on CSE as a general and system-independent construct. Thus far, very little research has examined the impact of CSE at the application-specific level on computer training outcomes.

Despite the apparent similarities between general and application-specific CSE, there are genuine differences between the two concepts. While CSE at the general level is considered a trait-oriented efficacy (applicable to a variety of tasks and achievements), CSE at the application level is considered a state-oriented efficacy (applicable to specific tasks and situations) (Hsu & Chiu, 2004). Furthermore, the evaluation of CSE at the general and application-specific level is aligned more closely with the notion that self-efficacy can be assessed at a general or task-specific level (Bandura, 1986; Gist, 1987). Finally, this distinction allows assessments of application-specific CSE to exclude evaluations of cross-domain skills necessary to perform a given computing task such as using a spreadsheet application to prepare a financial forecast (Marakas et al., 1998).

The primary purpose of this study is to investigate the impact of general and application-specific CSE on computer training outcomes. Thus, the present study attempts to provide better insights into the relationships among the multilevel CSE construct and various computer training outcomes. Accordingly, the study proposes and empirically tests a research model that comprises the following variables: general CSE, application-specific CSE, perceived ease of use, computer anxiety, near-transfer learning, and far-transfer learning.

RESEARCH MODEL AND HYPOTHESES

The research model underlying the present study is presented in Figure 1. This model was developed based on self-efficacy and learning theories, training literature, and empirical IS studies. As Figure 1 shows, the research model hypothesizes that general and application-specific CSE will have positive effects on perceived ease of use, near-transfer learning, and far-transfer learning. In addition, the research model hypothesizes that general and application-specific CSE will have negative effects on computer anxiety.

As previously noted, the present study extends previous research in several important aspects. First, the study makes a clear distinction between general and application-specific CSE and examines both forms of CSE as determinants of computer training outcomes. Second, learning performance is examined in terms of near-transfer and far-transfer learning. Third, consistent with training literature that regards trainees' reactions as a major training outcome, reactions are examined with respect to perceived ease of use and computer anxiety. The research variables and their relevant hypotheses are discussed and presented below.

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