Effectiveness of Computer Training: The Role of Multilevel Computer Self-Efficacy

Bassam Hasan, The University of Toledo, USA

ABSTRACT

This study builds on recent findings in information systems (IS) research and training literature to develop and test a model of the impact of multilevel computer self-efficacy (CSE) on effectiveness of computer training. The proposed research model makes a clear distinction between general and application-specific CSE and hypothesizes that the two levels of CSE will have positive effects on perceived ease of use, near-transfer learning, and far-transfer learning, and a negative effect on computer anxiety. The results of a field experiment conducted to empirically test the hypothesized relationships revealed that general CSE had positive effects on far-transfer learning and perceived ease of use, whereas application-specific CSE demonstrated positive effects on near-transfer learning and perceived ease of use. The results also showed that general and application-specific CSE had negative effects on computer anxiety. This study provides better insights into the relationships between the two levels of CSE and computer training outcomes and offers valuable research and practical implications.

Keywords: computer anxiety; computer training; far-transfer learning; general computer self-efficacy; near-transfer learning; perceived ease of use; software-specific computer self-efficacy

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 (Kirkpatrick, 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...
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