Development of the Workplace Computer Self-Efficacy Scale

Abstract: The current study outlines the development of a psychometric measure of workplace computer self-efficacy (WCSE) to be used for research on the adoption of technology and the formation of attitudes toward technology. Results support a four-factor structure of WCSE and demonstrate construct validity.

As computer-based technologies become increasingly important tools in the workplace, effective measurement of attitudes held by workers toward technology becomes increasingly important as well. Computer self-efficacy (CSE) is a ubiquitous construct in psychology, education, and information systems literature that reflects the judgment of one’s capability to use a computer (Compeau & Higgins, 1995). CSE has been linked to attitudes, interests, goals, behavioral intentions, and behaviors concerning computers (Karsten, Mitra, & Schmidt, 2012). However, extant measures are specific to outdated technologies (e.g., LAN, mouse; Marakas, Johnson, & Clay, 2007) and may have limited predictive validity. The current study addresses this gap by developing a measure of relevant workplace computer self-efficacy (WCSE) that includes large categories of technology. In doing so, we hope to create a measure that will retain its predictive validity over a greater period of time than extant measures.

Hinkin’s (1998) guidelines were used to develop our WCSE measure. Initial items developed for the WCSE scale were informed by O*Net’s Tools & Technology (T2) database (O*NET, 2011), a database that provides information on the use of technology in the workplace.

Following a content validity assessment, 15 retained items were distributed to 253 participants recruited through an online marketplace. Principal axis factoring with promax rotation identified four factors explaining 59.99% of the variance. Scale reliability (Alpha=.90) and item communalities were then examined for poorly performing items, of which we found none. Factors were identified and labeled as “analytical software skills,” “basic software skills,” “media software skills,” and “office productivity software skills.” Correlations and factor analyses will be presented and demonstrate convergent and discriminant validity evidence.

Development of the WCSE scale has several implications that affect both researchers and practitioners. As CSE is a predictor of technology acceptance, technology-related performance, attitudes, behavioral intention, and behavior, an improved measurement tool will provide more accurate predictions for the aforementioned effects of CSE. In turn, this may give researchers a greater understanding about complex psychological processes, like the adoption of technology and the formation of attitudes toward technology.