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RESKILLING INFORMATION SYSTEMS PROFESSIONALS: EXAMINING INDIVIDUAL DIFFERENCES IN CAPACITY FOR CHANGE

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Although information systems (IS) researchers and managers have long sought to understand the factors that influence the outcomes of technology implementation, prior research has largely overlooked the role of individual employee differences in explaining their responses to technological innovations that are adopted at the firm level. Since IS managers currently seek to implement various innovations to improve the effectiveness of software development, this study seeks to understand how employee differences may explain their reactions to such software process innovations (Fichman and Kemerer 1993). Rather than examining factors that explain the *voluntary* individual adoption or use of technology (Igbaria et al. 1995; Zmud 1979), this research examines individual differences when innovations are adopted at the firm level (Agarwal et al. 1997; Fichman 1992), for example, where employees are subject to strong social or managerial influence (Leonard-Barton and Deschamps 1988) to adopt an innovation. The innovation examined is the organizational adoption of client/server development—an organization change process that is often associated with the reskilling or retooling of IS professionals (Ziff 1993).

Using the *theory of work adjustment* (Dawis and Lofquist 1984) as its theoretical foundation, this study developed an expanded framework incorporating individual differences in *capacity for change* to understand IS employees' responses to technological innovations adopted by the firm. Specifically, capacity for change is hypothesized to be one factor associated with higher levels of employee job satisfaction and performance and to be indirectly related to lower employee turnover intentions following the organization's adoption of client/server development. Capacity for change is proposed as a general construct, which is operationalized here according to three scales that have been extensively studied in the psychology and organizational behavior literature: *tolerance for ambiguity* from a cognitive style research (MacDonald 1970), individual *innovativeness* from creativity research (Kirton 1994), and *personal resilience* from the stress and health literature (Conner 1992).

This research was conducted through a combination of longitudinal field studies and a cross-sectional survey in two large organizations. Field interviews with 30 IS managers and employees across various hierarchical levels were conducted to acquire background information about each firm. Next, a diskette-based survey was distributed to 220 IS professionals (programmer/analysts) in the two firms to collect data from IS employees on a number of demographic, personality, and job-related attributes, as well as their responses to the use of client/server development. A second diskette-based survey was sent to the direct managers of each IS employee respondent in order to capture managers' evaluations of employees' job performance.

Data were analyzed by first performing internal reliability analysis, factor analysis, and multiple regression analysis. The results demonstrated support for the established relationships in the theory of work adjustment. In addition, the results supported the hypothesized positive relationship between employees' capacity for change and their job satisfaction and also the indirect relationship between capacity for change and employee turnover intentions. Propositions related to the positive relationship between capacity for change and employees' job performance were not supported, however.

Research in Progress

For many reasons, the *rejected* propositions that examined the relationship between capacity for change and job performance offered more intriguing insights by shedding light on the nature of the capacity for change construct. Further analysis of the different facets of job performance—based on four distinct dimensions of IS employee performance (Goldstein 1988)—showed that capacity for change was negatively associated with IS managers' ratings of employees' level of business knowledge, but unrelated to employees' technical skills. Capacity for change, thus, appears to be a useful construct in explaining IS employees' affective reactions to a software process innovation adopted at the firm level, but does not explain their job performance—at least not in the predicted direction.

This relationship between IS employees' capacity for change and business knowledge seems paradoxical, since it appears to suggest that employees with greater capacity for change learn less about the business. Further analyses of this result suggests a more subtle relationship, illustrating the double-edged nature of employee capacity for change. While employees with greater capacity for change report greater job satisfaction and have *lower* turnover intentions to quit their jobs, these employees are also ambitious workers who strive for new challenges and opportunities, changing jobs and employers more often than their peers with lower capacity for change. By thus transferring jobs more frequently, high capacity-for-change employees may accumulate less business knowledge that is specific to a single department, business function, or employer.

Taken as a whole, this study showed that IS employees' capacity for change is associated with greater job satisfaction following organizational adoption of software process innovations, but also lower cumulative business knowledge. Capacity for change is an important construct for IS managers and researchers to understand, yet given the paradoxical nature of its relationship with IS employees' job satisfaction and performance, further research is needed. IS managers are advised to be cautious in making personnel staffing decisions based on the capacity for change construct.

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