Chapter 52
The Effect of Education on Information Systems Success:
Lessons from Human Resources

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ABSTRACT

Research into the relationship between education and information systems (IS) success (use, satisfaction, and impact) has produced mixed results. Such results seem counterintuitive, given the many benefits that education brings to the workplace. However, workplace research from Human Resources (HR) has similarly found that education has little direct effect on job performance. Instead, education has indirect effects on job performance through job expertise, which is what drives behavior and job performance. The present research integrated the Delone & McLean IS Success Model with the Job Performance Model, and found similar results: in a survey of 465 professionals working in business analytics (BA), user education level had no direct effect on IS success (BA tool use, satisfaction, and impact). Instead, education level had a positive effect on expertise with the BA tool, which in turn positively affected BA tool use. These results build upon those from HR, and suggest that education has an indirect effect on IS success, rather than a direct effect.

INTRODUCTION

Scholars have long held that differences among end-users affect information systems (IS) success (e.g., Agarwal & Prasad, 1999; Keen, 1981; Zmud, 1979). Though IS success is a multifaceted construct, commonly accepted success factors from the Delone & McLean IS Success Model (DeLone & McLean, 1992, 2003), such as use, satisfaction, and individual impact, will vary based on one or more user characteristics (Petter, DeLone, & McLean, 2013). For example, there is strong evidence that a user's computer self-efficacy positively correlates with system use (Compeau & Higgins, 1995; Compeau, Higgins, & Huff, 1999; Taylor & Todd, 1995). However, despite the intuitive appeal that individual differences matter when it comes to IS success, some individual differences do not have the positive effects on IS success that researchers expect. For example, user education level has produced no consistent effect on IS use, satisfaction, and individual impact (Petter et al., 2013). These results seem to contradict conventional wisdom, because education not only increases one's knowledge and skills, but also brings along a host of other benefits (e.g. problem-solving skills) that should positively affect IS success (Burton-Jones & Hubona, 2005; Igbaria, Guimaraes, & Davis, 1995; Mathieson, Peacock, & Chin, 2001).

To clarify this relationship, we examined the workplace literature within Human Resources (HR), and found that education does not consistently have direct effects on job performance (Ng & Feldman, 2009). Instead, education is positively correlated with general mental ability (GMA or IQ) (Ceci, 1991; Ng & Feldman, 2009). According to the Job Performance Model (Schmidt, Hunter, & Outerbridge, 1986), GMA and job experience combine to build job expertise, and it is expertise that matters most when it comes to job performance (McDaniel, Schmidt, & Hunter, 1988; Schmidt et al., 1986; Schmidt, Hunter, Outerbridge, & Goff, 1988). Therefore, education (as a proxy for GMA) may have indirect effects on job performance, not direct effects.

The present research builds upon evidence from HR, by integrating the DeLone & McLean IS Success Model with the Job Performance Model, to examine whether education level has direct effects on IS success factors, or has indirect effects through expertise.

BACKGROUND AND HYPOTHESIS DEVELOPMENT

IS Success and User Education Level

One of the best-known frameworks for measuring IS success comes from DeLone and McLean (1992), whose original research model identified six interdependent dimensions of IS success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. Since then, their original model has been updated by adding Service Quality as a first-order determinant (along with System Quality and Information Quality), and by combining Individual Impact and Organizational Impact into a new construct titled "Net Benefits" (DeLone & McLean, 2003). The DeLone and McLean IS Success Model (D&M Model) has been applied (in whole or in part) in a variety of IS research settings, and has generally found empirical support (e.g., Iivari, 2005; Rai, Lang, & Welker, 2002). Attempts have been made, however, to further improve the model's efficacy, by identifying factors (e.g. task, user, project, and organizational) that affect these success dimensions (Petter et al., 2013).

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