Assessing ERP Learning (Management, Business Process, and Skills) and Attitudes

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ABSTRACT

Critical to successful implementation and maximizing the potential benefits of enterprise resource planning (ERP) systems are knowledgeable and skilled users. Effective training for the required knowledge and skills is both difficult and challenging. Focusing on the assessment of ERP learning, this research develops learning constructs based on Kang and Santhanam’s (2003-4) collaborative application learning model. A valid and reliable ERP learning instrument that can be used to measure ERP learning and attitudes toward ERP is presented. The ERP learning instrument consists of three constructs (16 items) to measure ERP learning (business process knowledge, enterprise systems management knowledge, and transaction skills) as well as measures of attitudes toward ERP (instrument available from the authors at no cost). The results of the study indicate that an ERP simulation game enhanced student learning and influenced student attitudes toward an ERP system.

Keywords: Attitudes, Enterprise Resource Planning, Learning, Simulation, Training

INTRODUCTION

Large enterprise resource planning (ERP) systems offer competitive advantage opportunities, via functional process integration, necessary in today’s global business environment. Critical to successful implementation and maximizing the potential benefits of ERP systems are knowledgeable and skilled users. Davis and Yi (2004) indicate that insufficient computer skills are a key reason why organizations investments in information technology often fail to deliver productivity gains. Effective teaching and training for required knowledge and skills is both difficult and challenging; improved strategies for effective learning include the use of business simulations. In their recent Simulation & Gaming article, Anderson and Lawton (2009)
focused on research associated with the assessment of cognitive learning in business simulations. The authors indicate that little progress has occurred in objectively assessing cognitive learning in simulations and call for research that might help determine whether simulations accomplish what they purport to achieve in terms of participant learning. Seethamraju (2011) focused on the use of an ERP simulation game in learning enterprise resource planning (ERP) concepts. He attempts to address some of the concerns raised by Anderson and Lawton (2009); his results suggest that an ERP simulation game had a significant impact on students’ ERP abilities and contributed to learning in addition to significant improvements in their process orientation and skills.

The current research develops ERP learning constructs designed to assess cognitive learning. Using Kang and Santhanam’s (2003-4) collaborative application learning model, ERP learning measures (based initially on Seethamraju’s (2011) items) are further developed and refined into ERP knowledge constructs for assessing ERP learning. Consequently, a valid and reliable ERP learning instrument used to measure ERP learning and attitudes toward ERP is presented and made available. This research develops, validates, and presents a sixteen (16) item instrument using three constructs to measure ERP learning – business process knowledge, transaction skills, and enterprise systems management knowledge. In addition, measures of attitude toward ERP are presented. Moreover, based on multiple samples of learners that used an ERP simulation game, this study presents evidence of significant improvements in ERP learning and significant changes in attitude toward ERP and ERP software.

RELATED STUDIES: ENTERPRISE SYSTEMS TRAINING AND KNOWLEDGE

In response to rapidly increasing competitive pressures and significant uncertainty in the current business environment, organizations are increasingly moving toward integrating their functional processes as a major strategy in information systems. In the past few years, ERP systems have had a significant impact on business organizations (Liang, et al., 2007). Consequently, universities and corporate training programs have incorporated some of the commonly used ERP systems (e.g., SAP, Oracle and Microsoft Dynamics) into curricula and training (Hayen & Andrea, 2003; Antonucci et al., 2004). This is primarily a result of the ever-increasing use of ERP and enterprise systems as a significant component of the business. These large commercial software packages enable the integration of transaction-oriented data and business processes throughout the organization (Breinh et al., 2000). ERP systems were developed to replace functional information systems, which typically operate in silos within an organization and generate inefficiencies and inconsistencies due to their lack of integration. Even with widespread adoption of ERP, new implementations continue to have challenges and failures (Momoh, 2010). These failures underscore the need for education and training.

Businesses are making significant investments in ERP systems with the goal of providing faster, higher quality decision-making information through the integration of processes which eliminates functional information silos. One result of this widespread implementation of ERP systems is an increase in the demand for professionals who have knowledge and skills of ERP systems and their underlying integrated processes. This demand creates new challenges for business schools and IS (information systems) programs. Business instructors have typically delivered their education through functional-based courses such as marketing, operations, finance, and accounting (Cannon, Klein, Koste, & Magal, 2004). Education through a function-based courses approach has been criticized because it does not prepare students to work with cross-functional systems that are becoming increasingly common in this ERP era (Malekzadeh, 1998). Yet, until recently few learning methods other than comprehensive case-based methods have been available.

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