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Research Notes

An experiential learning pedagogical framework for enterprise systems education in business schools

Umar Ruhi

Telfer School of Management, University of Ottawa, Ottawa, ON, Canada

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ABSTRACT

Enterprise Systems (also known as Enterprise Resource Planning or ERP systems) have experienced mainstream adoption across various industries as a comprehensive solution for cross-functional integration and end-to-end business process management. In the post-modern ERP era, these technologies continue to grow in use as companies of all sizes digitize their business processes through flexible multi-vendor sourced enterprise systems. To meet the needs of the industry and train a competent workforce, business schools are under constant pressure to develop and deliver courses related to enterprise systems strategy, implementation, and use. In order to be effective with providing enterprise systems training, faculty members require a deep understanding of different pedagogical practices that can help in teaching ERP systems by taking into consideration the myriad of learning styles of students and the variety of instructional resources and techniques that can facilitate student learning. This paper provides an overview of current ERP curriculum design and teaching practices from the extant literature, and proposes a pedagogical framework for enterprise systems courses in business schools by drawing upon principles and postulates of experiential learning theory. The proposed framework outlines the use of (i) lectures and seminars; (ii) case discussions; (iii) system demos and screencast tutorials; (iv) simulations and interactive assessments; (v) workshops and walkthrough assignments; and (vi) capstone projects. Various benefits of these teaching practices are discussed, and possible ways of integrating them into a coherent enterprise systems program offering are suggested. Lastly, aligned with the proposed framework, the paper offers several actionable guidelines for pedagogical design based on the author's own experience with teaching enterprise systems courses over several years. Overall, the proposed pedagogical framework aims to offer a viable means to facilitate effective ERP course offerings aimed at helping students perceive and process the uses, benefits, functions and applications of enterprise systems in a business environment.

1. Introduction

Enterprise systems (ES), also commonly known as Enterprise Resource Planning (ERP) systems, have experienced pervasive acceptance across different industries and companies of all sizes over the past three decades (Hardcastle, 2015; Teach, 2016). These systems have not only enabled organizations to achieve cross-functional business process integration across internal business operations, but have also facilitated collaboration among business partners through the use of

E-mail address: umar.ruhi@uottawa.ca.

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various e-business technologies (Møller, 2005). By some expert accounts, growth of the ES market will remain unabated in the near future as many businesses continue to digitize their operations, and new and existing technology vendors offer flexible ES solutions to cater to businesses that previously could not afford to implement a complete ERP suite (Cohen, 2014; Hein, 2014).

In light of these trends, it is imperative for business school graduates to be well-versed in the use of ES, and consequently academic institutions have attempted to incorporate ERP and business process management course offerings in their programs[1] (Hayes & McGilsky, 2007; Pridmore, Deng, Turner, & Prince, 2014; Wang & Hwang, 2011). However, teaching a complex integrated information system such as ERP has its own set of challenges, and past research shows that traditional pedagogical techniques have not been able to bring about the desired results in terms of effective student learning outcomes (Alshare & Lane, 2011; Willems & Bhuiyan, 2006). For students who have not previously been exposed to ERP software packages, these systems are complex and challenging to learn (Davis & Comeau, 2004; Léger et al., 2011; Pridmore et al., 2014). Hence, many ES educators and researchers have underscored the need for additional research and for theoretically grounded pedagogical practices that can help in the design and delivery of ES courses (Alshare & Lane, 2011; Chasalow, 2014; Cronan & Douglas, 2012; Nisula & Pekkola, 2012).

To address the need for an improved approach to ES education in university business programs, this paper adopts an experiential learning lens to propose a pedagogical framework comprising various teaching practices and course activities. Through its multidimensional treatise of individual learning processes and different learner styles, experiential learning theory (ELT) offers a compelling basis for the development and improvement of academic curricula (Kolb, 1984; Kolb & Kolb, 2008). However, in the context of ES course offerings, it has rarely been used in a comprehensive manner to deliberate the use of different ERP teaching practices. Hence, the proposed pedagogical framework in this paper addresses a key gap in the extant literature with respect to the discourse on effective teaching methods for ES education.

In terms of structure, this paper first defines enterprise systems and highlights their strategic role as an integrated information system in organizations. We then review the evolution of the ERP systems over the past three decades to inform our understanding of the changing requirements for ES education in business schools. Following this, the paper outlines some of the current pedagogical practices in ES academic programs. Next, to elucidate how experiential learning theory is a suitable fit for ERP course offerings, we review its theoretical premise and main precepts. Finally, we propose an experiential learning pedagogical framework consisting of various teaching practices and course activities to help formulate a holistic approach towards ES education. This approach draws upon existing ERP teaching practices as well as recommendations from experiential learning theory with the aim of accommodating students with different learning styles, increasing student engagement, improving academic performance, and increasing student self-efficacy with the use of enterprise systems.

2. Overview of enterprise systems & current technology landscape

An enterprise (resource planning) system is a software package that provides seamless integration of all the information flowing through an organization (Davenport, 1998; Kumar, Maheshwari, & Kumar, 2002). A typical ERP system shares common transaction-oriented data, manages cross-departmental process workflows, applies consistent business rules, and helps in the implementation of standard operating procedures across the company's various functional areas including manufacturing, accounting, finance, marketing, sales, human resources, and logistics (Hayes & McGilsky, 2007; Jacobs & Weston, 2007; Kumar et al., 2002; Léger et al., 2011; Willems & Bhuiyan, 2006). All data generated throughout an organization are accumulated and made available to every function on a real-time basis, hence alleviating inefficiencies associated with redundant data and communication lags, and providing a foundation for integrated information system functions and business processes across the enterprise (Jacobs & Weston, 2007; Scott & Vessey, 2000).

In terms of their evolution, the extant literature differentiates between the internal business process integration focus of first generation ES from the external collaborative capabilities provided by the so-called ERP II systems (Antonucci, Corbitt, Stewart, & Harris, 2004; Møller, 2005). The ERP II terminology was introduced by Gartner Research (Bond et al., 2000), and has since been used to refer to enterprise system capabilities that extend traditional ERP system functions and facilitate the management of information in an inter-organizational context. These ERP II systems enable collaborative initiatives such as supply chain management (SCM), customer relationship management (CRM), and business intelligence (BI) among business partner organizations through the use of various e-business technologies (Antonucci et al., 2004; Møller, 2005).

Although they have been around for almost three decades, the market for ERP systems is still growing (Ganly & Montgomery, 2015; Jacobson, Shepherd, D'Aquila, & Carter, 2007) as an increasing number of organizations adopt digital business processes (Ganly & Montgomery, 2015), and companies with existing ERP systems revamp their core systems and adopt new technology solutions (Ganly & Montgomery, 2015; Hardcastle, 2015; Robb, 2013). This current period in the evolution of ERP systems is being termed as the *post-modern ERP era* and is characterized by the decline of single-vendor, suite-centric ERP systems in favor of more flexible and variably sourced and integrated software systems (Ganly & Montgomery, 2015; Hardcastle, 2015). These offerings provide novel technology capabilities that can be added on top of existing ERP systems. For example, many organizations are adopting a two-tier ERP strategy whereby different ERP suites may

[1] Please note that this article adopts North American educational nomenclature whereby an academic *program* comprises several courses that are required to complete a university degree, and each *course* constitutes an individual subject offered as a unit of learning over an academic term.