Integrating ERP into the Curriculum

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INTRODUCTION

In today's dynamic business environment; customer needs, competition, globalization, and technology have combined to produce a powerful effect on the process of delivering goods and services to the marketplace. According to Closs and Stank (1999, p. 59), businesses have abandoned the "vertical, functional organizational structure characteristic of traditional procurement, manufacturing and physical distribution operation in favor of a more horizontal, cross-functional structure that permits integration of knowledge across functional areas." Enterprise resource planning (ERP) systems, by their multidimensional, integrative, and normative nature, offer the depth of functionality and breadth of integration required for managing global operations of business organizations. Hammer (1999) concludes that the use of ERP software forces firms to become integrated enterprises that demand strong understanding of key business processes and very high level of teamwork. The effectiveness of ERP systems as an integrating mechanism in businesses suggests that ERP software can be used as an integrating mechanism in business school curricula, too. As a result, an increasing number of universities have attempted or are planning to incorporate popular enterprise system software products such as SAP R/3 into the business school curricula (Bradford, Vijayaraman, & Chandra, 2003; Corbitt & Mensching, 2000; Johnson, Lorents, Morgan, & Ozmun, 2004). This article attempts to provide a proactive approach to implementing ERP systems into a business school curriculum.

BACKGROUND

In response to the widespread application of ERP systems by the business community, business schools are becoming more concerned about how to integrate ERP into the curriculum. Various frameworks and approaches have been utilized to meet this critical demand. Gibbon and Aisbett (1999) suggest that ERP systems be taught through understanding the history of business information requirements. Hawking, Shackleton, and Ramp (1999) provide a mechanism to integrate ERP teaching in the information systems (IS) curriculum model across 11 levels of knowledge relating to fundamentals of IS. Ongkasuwan (1999) proposes a cost-effective approach for incorporating R/3 into the management information systems (MIS) curriculum of MBA and BBA programs. Quinton (1999) provides recommendations and guidelines concerning the inclusion of R/3 into a business curriculum in the context of a strategic alliance with an ERP vendor. Rivetti, Schneider, and Bruton (1999) consider the ERP educational strategy as a curriculum integration mechanism to re-adjust the educational delivery that focuses on standard functional areas towards a more integrated business process approach. Watson and Schneider (1999) recommend the concept of a multilayered approach to ERP concepts and education. Specific methodologies to teaching ERP in the undergraduate curriculum have also been explored by researchers such as Becerra-Fernandez et al. (2000) and Guthrie and Guthrie (2000). Wagner, Najdawi, and Otto (2000) discuss how business schools are using ERP software as an integrative teaching tool.

Stewart and Rosemann (2001) propose the use of case study and action research approaches in researching and teaching aspects of postgraduate ERP related programs. Bradford et al. (2003) highlight the reasons for adopting or not adopting ERP for classroom use based on a business school survey. Selen (2001) proposes the inclusion of basic business skills as part of ERP education. Joseph and George (2002) suggest the use of learning community to instruct students in ERP systems. Davis and Comeau (2004) provide a good example of how to design, deliver, and measure the outcome of a course on enterprise integration at

Table 1: Example of approaches to integrating ERP in the business curriculum

Institution	ERP Approach
Grand Valley State University	Uses a dual approach to achieving ERP integration in the business curriculum. The approach entails the use of a fictitious model company and its simultaneous implementation in an ERP environment.
John Carroll University	The ERP curriculum is centered around three interactive exercises that last approximately one week each. The exercises are: (1) a case analysis of an ERP novel, (2) Systems Development Life Cycle (SDLC) analysis of ERP implementation failures, and (3) Some ERP hands on exercises either with a live ERP system or computer based training (CBT) courses.
Northern Arizona University	Use ERP as an integrative theme for a 9 credit hour "block" of core business courses (Finance, MIS, and Operations Management). They use a single professional staff member to develop an integrative set of tutorials and cases around a simulated company that supplies the data across all of the participating courses.
Penn State University	Developed a 12 step three-course approach to ERP education. Within these courses, a strong emphasis is given to business function fundamentals, processes, and management.
University of New Brunswick	The faculty members designed a capstone ERP-based undergraduate e-business management course that focuses on enterprise integration in businesses. Students are evaluated in three areas: (1) completion of literature log containing literature summaries and reflections, (2) completion of configuration exercises on SAP R/3, and (3) completion of a take-home business case.
Source: Cannon et al. 2004; Davis and Comeau 2004; Grenci et al. 2004; Johnson 2004; Peslak 2005	

the undergraduate level. Cannon, Klein, Koste, and Magal (2004) suggest an alternative integrative case approach for integrating ERP into the business curriculum. Fedorowicz, Gelinas, Usoff, and Hachey (2004) describe 12 tips for successfully integrating ERP across the curriculum. Grenci and Hull (2004) provide a framework for using traditional systems analysis and design concepts with ERP-specific concepts. Johnson et al. (2004) recommend a customized ERP/SAP model for business curriculum integration. Peslak (2005) recommends a 12 step, multiple course approach to teaching ERP.

Table 1 provides a summary of five business schools that have used different approaches to integrating ERP into their curriculum.

BENEFITS AND CHALLENGES OF INTEGRATING ERP INTO A BUSINESS SCHOOL CURRICULUM

The use of ERP systems can provide a variety of benefits in a business school curriculum. One of the most important benefits is the ability of ERP systems to help students understand the underlying need of business processes and to serve as a focal point for integration of knowledge across functional areas. Other important benefits for students include:

- Exposure to real world software that illustrates real-world business processes,

- Enriched cross functional curriculum in which students obtain a broader perspective of the organization,
- Exposure to the caliber of technology with which they will work in their careers,
- Desirable and higher paying jobs because of stronger knowledge of company operations and substantially less training required,
- Ability to contribute earlier than most new people to the projects that they are assigned,
- Ability to translate requirements in meaningful analysis for applications,
- Bringing a higher level of confidence to work, and
- Better prepared for challenges and also less whining when the going gets rough (Peslak, 2005; Vluggen & Bollen, 2005).

The challenges to integrating ERP into the business curriculum include:

- Very time consuming,
- Resource drain,
- Alteration of course content,
- Pedagogical challenges,
- Faculty resistance,
- Faculty reward structure (teaching load issue),
- Faculty members' lack of understanding of other disciplines,
- Difficulty in accommodating part-time students and transfer students, and

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