The ERP Challenge: Developing an Integrated Platform and Course Concept for Teaching ERP Skills in Universities

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ABSTRACT

This article investigates the teaching of practical ERP skills. The discussion is centered on an innovative teaching concept called “The ERP Challenge”, which was developed to give students a hands-on experience with a commercial standard ERP system (Microsoft Dynamics NAV). The ERP Challenge consists of a business simulation game based on a real-world company case, an e-learning platform and the actual ERP system. The software platform for the ERP Challenge combines these elements in a seamlessly integrated way. Described further is the development of the software platform, the evaluation process for its refinement and the possibility to provide the solution as a hosted service. The findings from two supporting empirical surveys are presented; these show that the ERP Challenge is perceived as a successful means of providing ERP skills by the students and that the feasibility of a hosted service needs to be carefully examined.

KEYWORDS

Business Simulation Game, Dynamics Nav, Education, E-Learning, ERP, Gamification, Practical, Schubert, Schwade, Students, Teaching, University of Koblenz, University

INTRODUCTION

Enterprise Resource Systems in University Education

ERP systems are considered to be the most commonly used business software in companies (Motwani, Subramanian, & Gopalakrishna, 2005). Providing training and education to ERP users has been argued to be an important factor for successful ERP system adoption (Dezdar & Ainin, 2011). The teaching of ERP skills in university programmes on Information Systems or Business Administration should thus be an important part of the curriculum in order to prepare candidates for a possible future career in industry (H. Lee & Chen, 2006; Venkatesh, 2004). An approach commonly used to teach ERP systems is problem-based learning. Students are asked to solve a given problem using an off-the-shelf ERP system (Brandon-Jones, Piercy, & Slack, 2012). This approach is often combined with an e-learning environment that provides the material and tasks which are to be solved by the students in the ERP system (Léger, 2006; Paa & Ates, 2013). E-learning platforms can also be used to test theoretical knowledge about ERP systems in the form of multiple choice questions (Klima et
The application of e-learning systems has been shown to help improve the effectiveness of the learning process (Bischof & von Stuckrad, 2013). There are two different approaches that can be taken in the design of courses: (1) teacher-centred course design and (2) learner-centred course design. Teacher-centred courses usually come in the form of lectures and exercises. Learner-centred courses are often based on a case study, which defines the context of the learning environment and guides the students through problem statements and tasks. In the context of ERP courses, the students are solving tasks in an ERP system (Klima et al., 2014). A study conducted in 2011 shows that the majority of professors that hold Chairs for Information Systems at research-oriented German-speaking universities teach ERP related topics (Leyh, Winkelmann, & Lu, 2011). However, only 64% of these professors expose the students to practical experiences with an ERP system (Leyh et al., 2011). The numbers show that the training of practical ERP system skills is not a mandatory part of many study programmes on Information Systems and related topics such as Informatics or Business Administration although it has been shown that practical ERP skills are essential for these professions.

In this paper, we present the “ERP Challenge”, a software solution that was developed for the training of practical ERP skills at Universities. The ERP Challenge provides an integrated e-learning environment (including an e-learning component and a standard ERP system), which is designed to solve existing problems with the installation and maintenance of the necessary infrastructure.

The ERP Challenge was developed by a research group at the University of Koblenz-Landau to teach the practical use of ERP systems. The software platform is complemented by a business simulation game, which is based on a case study (providing real-world business processes) of an existing company. The necessary teaching instructions and tasks are provided by an e-learning platform which is integrated with the ERP system. The integration between the e-learning platform and the ERP system enables the e-learning platform to automatically evaluate the work of the students in the ERP system (autograder). The ERP Challenge is designed as a complementary exercise to a Bachelor course on ERP systems. The practical part is performed in Microsoft Dynamics NAV. The intention of the ERP Challenge is to provide an innovative and motivating way to teach ERP systems and to ease the lecturer’s technical and administrative workload for the course. The technical architecture is designed in such a way that it can be provided as a hosted service.

Prior to the development of the ERP Challenge, the research group was a customer of the SeresUnit, which offered an e-learning environment for the ERP system Semiramis by Comarch. When the SeresUnit discontinued their University programme, the research group was forced to find a new solution in order to sustain their aim of providing students with high quality ERP system education. After an examination of existing services for ERP education (of which some will be described below), they decided to develop their own solution in the form of the ERP Challenge.

The remainder of this paper is structured as follows: Firstly, existing approaches for the practical teaching of ERP Systems and the corresponding challenges are highlighted. Following this, the design process of the ERP Challenge and the architecture of the ERP Challenge are outlined. Next, the results of a feasibility study for a hosted service are presented and a possible business model is discussed. The article concludes with the evaluation of the ERP Challenge using data collected during the first three years of operation.

**Existing Approaches for Teaching Practical ERP Skills in Universities**

A literature review showed that case studies are a common approach to teaching practical ERP skills. A popular simulation game that gained significant attention in academia is the ERPSim, a business simulation game which was originally developed at the HEC Montréal (Léger, 2006). This simulation game is used to teach ERP software developed by SAP. In the ERPSim participants form groups and work in a virtual firm with a make-to-order supply chain. In this environment, students interact with suppliers and customers for example by sending and receiving purchase orders, delivering products and completing the cash-to-cash cycle. The only interaction interface for the students with the simulation game is the SAP ERP client. Students can make different decisions by addressing specific
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