The ERP Challenge: An Integrated E-Learning Platform for the Teaching of Practical ERP Skills in Universities

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Abstract

This paper investigates the teaching of practical ERP skills to students at German-speaking Universities. The discussion is centred 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. We describe the design science process for 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.

1. Introduction

ERP systems are considered to be the most commonly used business software in companies[1]. Providing training and education to ERP users has been demonstrated as an important factor for successful adoption of ERP system implementations[2]. It has been argued that the teaching of ERP skills in university programs on Information Systems

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or Business is an important part of the curriculum in order to prepare candidates for their future career in industry[3,4]. 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[5]. 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[6,7]. Such e-learning platforms can also be used to test theoretical knowledge about ERP systems in the form of multiple choice questions[8]. The application of e-learning systems has been shown to help improve the effectiveness of the learning process[9]. A study conducted in 2011 shows that the majority of IS professors that hold Chairs at German-speaking research-oriented universities teach ERP related topics. However, only 64% of these professors expose the students to practical experiences with an ERP system[10]. The numbers show that the training of *practical* ERP system skills is not comprehensively addressed although one might argue that ERP systems are a topic for which practical skills are essential.

In this paper we present the "ERP Challenge", a software solution that was developed to teach practical skills in ERP system use and that provides an integrated e-learning environment for the students. The ERP Challenge was developed by the University of Koblenz 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 (business processes) of a real organization. The necessary teaching instructions and tasks are provided on an e-learning platform which is integrated with an 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. The ERP Challenge is designed as a complementary exercise to a Bachelor class 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 administrative work for the course. The technical architecture is designed in such a way that it can be offered as a hosted service to other universities.

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 programs a few years ago, the professor in charge was forced to find a new solution and decided to develop a new teaching platform in the form of the ERP Challenge with the aim of providing students with high quality ERP system education.

2. Design Process

The ERP Challenge was developed by a team of students within a student project under the supervision of the ERP Professor at University Koblenz. The teaching concept for the ERP Challenge was designed and developed by members of the Professor's Research Group. The development was mainly driven by a Microsoft Certified student who provided outstanding expertise and experiences with Microsoft Dynamics NAV and Microsoft SQL to the project. A fully functional prototype for the ERP Challenge was developed within six months. Further refinements were later made as part of a Bachelor thesis[11]. The ERP Challenge was used for the first time in the course on ERP Systems in the Summer Semester 2014. After the first trial the ERP Challenge was evaluated and further refinements were made before it was successfully used for the second time in the summer term 2015. To date, the development of the ERP Challenge has followed a typical design science process including two evaluation and refinement cycles[12,13].

3. Challenges for ERP Systems in University Education

Possible reasons why some professors shy away from offering their students a hands-on training with ERP systems are rooted in the complexity of such business software which requires a high degree of familiarity with the software against a background of constant change of teaching staff at Universities. Practical skills are mostly taught in exercises which are given by research assistants or Ph.D. students who have to be replaced every three to five years. Teaching a complex business software such as an ERP system not only requires an in-depth knowledge of the functionality and use of the system but such systems are also difficult to install and maintain in the University's IT infrastructure e.g. in the form of an "ERP Lab". Therefore, the choice of the ERP system and the structure of the course heavily depends on the knowledge of the lecturer[10]. Two SAP UCCs in Munich and Magdeburg offer support for German professors who decide to teach SAP skills. For other ERP systems, however, professors need to organize licenses, installation,