Chapter 9
Open and Closed Practicals for Enterprise Resource Planning (ERP) Learning

Andrés Boza
Universitat Politècnica de València, Spain

Llanos Cuenca
Universitat Politècnica de València, Spain

ABSTRACT

Enterprise Resource Planning (ERP) systems are implemented in companies to improve their business processes. An ERP system entails extensive functional and technological aspects during its implementation. Teaching ERP systems for computer science students implies addressing these two aspects: ERP functionality and technological features. It is a challenge for teachers to design practical experimentation that students can perform in the teaching environment, due to the prerequisite of a deep understanding of the business processes, business user requirements, and the technological complexity of ERP systems. In order to improve student skills in ERP systems, we encourage active learning among students. In this chapter, we present a methodology using open and closed practicals to learn about both technical and functional aspects of ERP systems. Using these practicals allows us to prepare and organize this teaching/ learning process.

INTRODUCTION

New teaching/learning frameworks encourage students to play a more active role. The Bologna Process for establishing the European Higher Education Area considers that appropriate emphasis should be placed on autonomous work (Sorbonne, 1998). Thus, active pedagogical methods receive more emphasis than passive methods. The European Convergence Action Plan at the Universidad Politécnica de Valencia declares that students are the major figures in their educational process and

that they must acquire new ways of learning and new forms in which to apply it. Although autonomous work by students is guided by teachers, it is a new competency required of teachers. For this reason, it is necessary to design and perform special activities so that students develop meaningful co-operative autonomous learning. Within the University, the School of Computer Sciences is participating in several of these activities and staff from many subject areas are making and testing new proposals along these lines. The Computer Tools for Business course subject is taught in the last year of the computer science engineering degree (year 5) to intensify course subjects on Information Systems. This subject introduces students to ERP systems together with other topics such as business process management, interoperability, enterprise application integration and supply chain management.

Teaching ERP systems for computer science students implies addressing two main aspects:

- ERP functionality, where technical students must deal with the business processes covered by the ERP and business user requirements, and
- technological features, where students deal with the architecture of ERP systems and other complex technical features used in ERP implementation.

The challenge for teachers is significant. On the one hand, the limited previous knowledge that students have of the main business processes makes it difficult to deal with these aspects at an adequately high level of detail. On the other hand, the technological complexity of ERP systems makes it difficult to perform meaningful practical experimentation in the teaching environment.

In order to overcome these difficulties, we encourage active learning among students. Students learn about ERP definitions, features, its implementation processes in a company (selection, customization, configuration, etc.), and the difficulties in this process, from theoretical classes. However, they need to work with this tool to really improve their skills in ERP systems. In this chapter, we present a methodology using open and closed practicals to learn about ERP systems. In closed practicals, teachers present students with the resolution of a problem that is quite limited in the exposition and in the tools or methods used for its resolution. In the open practicals there is greater freedom in choosing the problem to be solved and the tools or resolution methods to be used to solve it.

ERP EDUCATION

The terms enterprise system and ERP (enterprise resource planning) system are equivalent terms (Davenport, 2000). ERP is an evolution of MRP-II (manufacturing resource planning) and PPC (production planning and control) (Delgado & Marín, 2000; Markus et al., 2000). Nowadays ERP is a generic term for standard software. The ERP system is an enterprise information system designed to integrate the business processes and transactions in a corporation and to optimize them. The ERP is an industry-driven concept and system, and is universally accepted by the industry as a practical solution to achieve integrated enterprise information systems (Moon, 2007).

The following are the main desirable characteristics of an ERP system (Davenport, 2000; Lee et al., 2003; Moller, 2005; Scheer, 1994):

- it integrates all the functions, processes and data of a company by using one single database and by defining individual roles and views
- it is applicable to most economic sectors
- it is modular in design
- it is based on *best practical* process reference models.

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