

Chapter 32

Adaptive Learning Cycle to Improve the Competence–Building for Enterprise Systems in Higher Education

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ABSTRACT

Higher education institutes like universities cannot ignore the need to teach well known information systems, like ERP systems. Case studies are the most chosen way to introduce the handling of these systems to fulfill the needs of the international employment market and to provide a practical focus within the education. Effective teaching concepts have to improve this situation by considering the pedagogical aspects, which support the individual learning process of each student. This chapter discusses the changes and challenges of enterprise systems in higher education and provides an overview about the learning theory and the actual learning supporting technology as a basis for our concept. The approach considers actual needs of higher education, e.g. present learning in a lab as well as e-Learning courses supported by new methods in technology-enhanced learning by recording students' behavior to guide them through the system. Therefore the authors introduce an Adaptive Learning Cycle which considers tracking and analyzing results deduced with mining methods to improve the learning progress. The aim is to achieve positive influences on the progress of the learning process to build up professional competence.

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INTRODUCTION

The actual situation in higher education is affected by universities with high drop-out rates, shoestring resources and increasing pressure of competition. Besides, they are fighting with manifold public criticism. Concurrently the change from the industry to a knowledge society enhances the relevance of universities as knowledge imparting institutions. Especially for the productivity of countries like Germany, education is an important factor for future and sustainable development: “The academic system in higher education accomplishes an important and long-lasting effective contribution for the advancement of growth an innovation and therefore for the dealing with the challenges of the demographic and economic change.” (German Science Council, 2006). So investments in education have a high Return on Investment. But the increasing amount of students and the enormous costs of this education bare the need to more efficiency and effectiveness in teaching. The classic lecture without the interaction with students has no cheaper alternative, because more interaction causes more effort in time and resources. Individuality and attractive learning offers could be only realized, if they compete in economic aspects. So, high-quality teaching stands in tension with economic aspects. The aim is to receive an increase in productivity of the teaching through the rise of the output (i.e. satisfaction and learning success) under concurrently reduction of the input (teaching effort).

To achieve an acquirement in factual and practical knowledge as well as in specific professional comprehensive competencies, a learning progress with interaction between the instructor and the learner is necessary. But the result is difficult to measure and depends much on the input and engagement of the learner. Both, instructor and learner have to invest in the teaching process, which makes it important to consider the input and output within the learning process. Exemplarily, the usage of multimedia input could be

useful from the didactical perspective: different learning types need different learning material or learning environment (Kahiigi, Ekenberg, & Hansson, 2007). Also it offers the possibility to repeat sections, which are not clear and understood yet. And of course this material could be provided independent from time and place, which offers more possibilities for self-directed learning and flexibility for the learner (Zangh, Zhao, Zhou, Jay, & Nunamaker, 2004).

The actual conversion of the degrees to the bachelor and master system following the bologna process and the resulting demand on competence orientation entail new requirements for the higher education system. They contain a change of the objectives in academic teaching from the primary scientific education to a professional oriented competence-building. This requires new teaching and learning forms to build up competence. Basically, academic teaching can be differentiated in three major tasks: the knowledge transfer, the knowledge application, expanding and deepening and the knowledge revision. The offer of praxis-relevant tasks in form of e-Learning or technology-enhanced is mainly focusing on the application and revision of the teaching issues. Internet-based e-Learning systems offer the students the possibility to learn and get practice independent from time and place. This self-directed learning is the most efficient learning (Kerres & Jechle, 2002). An interactive e-Learning-system will provide demanding and interactive practice for the students. The aim should be to utilize the knowledge and to build up problem-solving competence. But the initial euphoria about the potentials of pure e-Learning disappeared (Gabriel, Gersch, Weber, & Venghaus, 2006) and we need methodic founded instruments of evaluation for specific teaching and learning situations to build up this specific competence.

This contribution introduces an approach for a concept for new learning environments for enterprise systems. The concept focuses on the needs of teaching and learning in higher education

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