Chapter 3.10
E-Teaching Scenarios

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ABSTRACT

In this chapter a modern approach to e-teaching scenarios at the university level is introduced that focuses on the teacher. This approach covers content-related and communicational components of an e-education scenario. Content creation and delivery via Internet, as well as teacher-learner communication is shown from the point of view of the teacher. The content related part of an e-teaching scenario uses the well-known variety of computer-assisted training applications. The communication part refers to all aspects of teacher-learner and learner-learner communication within e-teaching scenarios. Based on elementary communication patterns and an easy-to-use technical infrastructure a set of reference communication processes for e-education is created and carried out depending on the chosen teaching method. To prove the technical feasibility of the concept the whole e-teaching process is supported by prototypic software solutions.

INTRODUCTION

Many new media technologies create concepts to find new ways of teaching and learning. Nevertheless, these concepts often cannot be implemented in successful educational scenarios (Kerres, 1998). The new technologies that should solve pedagogical problems in a revolutionary way are not developed for use in education from scratch. New technologies are mostly designed for economic or technical settings whereas pedagogical goals cannot be reached equally (Euler, 1999).

Recent research in the field of e-learning primarily deals with learner focused concepts. Tasks, actions, and roles of teachers often are only implicit parts of these concepts. First of all, new teaching and learning technologies meet several different predispositions and attitudes of teachers. Some teachers hope for better instruction using technology. Others fear acceptance, usage, and integration problems. E-education scenarios call for teacher activities that focus on supporting, consulting, and moderating learn-

ing processes more than imparting knowledge (Mandl & Reinmann-Rothmeier, 2001). Knowledge transfer in Web-based e-learning scenarios can be conferred almost completely on computer systems. Teachers design and produce the required learning material in advance supported by special authoring systems. But besides knowledge transfer, particularly the communication processes between teachers and students, determine the success of Web-based educational programs at the university level. Most e-learning platforms and applications on the market support at least basic communication functionalities. Nevertheless, the main focus resists on the production and distribution of contents, but well structured and complex content alone cannot reach modern pedagogical goals like soft skills or decision-making abilities. Only by discussion, using, and working with the new acquired knowledge these goals can be accomplished.

In this chapter a teacher focused e-learning approach for higher education scenarios is pinpointed. First we show how learning theory, motivational aspects of didactics, and teacher's attitude influence our concept. Then we define e-teaching scenarios and illustrate the main ideas with two examples. After that we discuss the effects of content-related and communication-related aspects of the concept. Finally we summarize the most important insights and sketch possible further developments.

BACKGROUND

Learning Theory

In the beginning of computer-based training, the prevailing learning theory was behaviorism. Behaviorism is restricted to observations of learning behavior that is influenced by external forces. Even many modern e-learning programs cannot deny their behaviorist roots as still many computer-assisted training programs are based on behaviorist ideas. Within e-teaching scenarios, behaviorist learning modules help teachers to communicate basic principles of a subject to a target group that is very heterogeneous concerning educational requirements.

In contrast to behaviorism, the cognitivist approaches emphasize internal process of learning that lead to a certain individual behavior. This theory takes a look at information processing within the cognitive structure of students and analyses decision making, implementation, and application of logic. Individual internal processes interfere with a suitable e-teaching strategy.

Different learners have different learning preferences and requirements that different e-teaching strategies have to consider and satisfy. The structure of learning material also adds to teaching success as teachers try to match this structure with the supposed cognitive structure of their students. Examples for this structuring are linear learning path for beginners and complex learning networks for advances students. The presentation and interaction modules of an e-teaching scenario should be designed accordingly.

But constricted cognitive approaches also disobey the complexity of human behavior as they reduce it to information processing. Cognitivism does not feature emotions, situations, or feelings (Kerres, 1998). The constructivist learning theory tries to cope with these shortcomings. It also hopes to solve the problem of inactive knowledge. Knowledge is called inactive when it cannot be used outside the learning context. Teaching by constructivist principles means to guide the students to construct their own knowledge and to be aware of the situational context this construction takes place. A successful learning process depends on individual activity and former experience. Multimedia technology can help to stimulate constructivist learning processes (Issing, 1998).

Motivational Aspects of Didactics

Motivation plays a key role at the beginning of each e-teaching scenario. While a teacher designs and carries out an e-teaching scenario, he or she