Chapter VII

Bridging the Gap with MAID: A Method for Adaptive Instructional Design

Jacopo Armani, Università della Svizzera italiana, Switzerland
Luca Botturi, Università della Svizzera italiana, Switzerland

Abstract

This chapter presents MAID, a complete design method for adaptive courseware tailored for non-technical people. Adaptive hypermedia systems represent a great potential for e-learning. Nevertheless, instructors and designers find it difficult to develop adaptive applications in real educational environments, mainly because no structured design method is available. The main principle upon which the method relies is that the basis for the exploitation of adaptive features in education is the definition and implementation of an instructional strategy. The MAID approach provides guidelines and tools that foster and enhance the communication between the technical staff in charge of managing the hypermedia system and the instructor by adopting her/his instructional strategy as the pivotal point for the communication.
Introduction

The creation of adaptive courseware started with expert systems and CAI (computer assisted instruction) and produced milestone applications as ISIS-TUTOR (Brusilovsky & Pesin, 1994) or SKILL (Neumann & Zirvas, 1998) and TANGOW (Carro, Pulido, & Rodríguez, 2001). These projects developed self-learning courses with adaptive tutoring, and traced a route by which, some years later, adaptive platforms could be developed, such as AHA! (De Bra & Calvi, 1998; De Bra, Aerts, Smits, & Stash, 2002a) or KBS Hyperbook (Henze & Nejdl, 1999). Adaptive platforms are general-purpose systems that allow the production of courseware for any content. It can be surely stated that the last decades of research in the field of adaptive hypermedia systems (AHS) produced a wide leap forward in terms of technical solutions and systems. Nevertheless, “just a handful of these systems are used for teaching real courses, typically in a class lead by one of the authors of the adaptive system” (Brusilovsky, 2004, p. 1), and also few institutions or companies systematically exploit adaptive components in their e-learning programs.

We claim that this gap between the maturity of technical developments and their use in the educational practice is also due to a lack of methodological support in the design of adaptive courseware, that is, of expertise in using adaptive components and systems in order to implement and enhance a course as conceived by a non-technical instructor.

The major concern of this chapter is MAID, a method for the design of adaptive educational application, suitable to a situation in which an instructional designer, familiar with some adaptive platform, is producing a course with an instructor or a subject matter expert (SME). A second concern of this chapter is a call to all AHS developers for defining not only tools, but also methods that may make the tools actually usable to educators.

This chapter first presents an overview of the literature, with particular emphasis on the instructional strategies, claiming that the definition of a specific strategy is the basis for the sound development of adaptive applications. The MAID method is then presented in detail by a case study. The following section recaps the method, and provides generalization insights and guidelines for designers. Finally, the results of the work are discussed and some outlook is provided.
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