



Joachim Wetterling

Reengineering courseware for web-based sharing and reuse

Joachim Wetterling is participating in a European research project dealing with development of a web-based system for the sharing and reuse of courseware.

Wetterling's work in this CANDLE project (Collaborative and Network

Distributed Learning Environment) involves the reengineering of courseware.

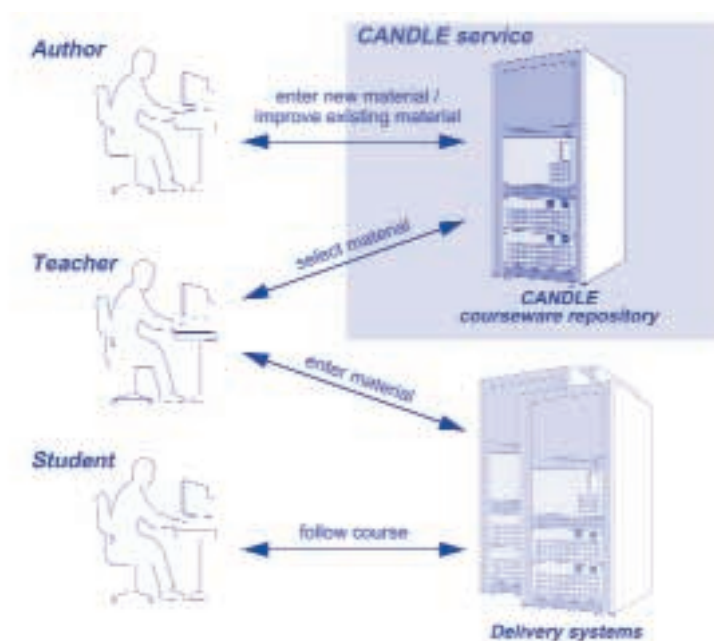
Because sharing courseware is anything but just 'dumping courses' on the web.

"Take the example of a teacher preparing a course. She discovers that a piece of learning material is missing and has to produce this missing material herself. In the CANDLE project, however, we envisage that this teacher searches the Web in a central database, called a repository, for courseware that can fill in the gap. She may have to modify the material she finds to adapt it to her course, but it is then ready to be presented to students. If they react favourably to her course, she may even decide to submit this course – including the part she inserted and possibly modified – to the web-based repository. This enables other teachers, wherever they are working, to use her work. In short, there are two primary motives for this sharing and reuse of courseware. The first is quality enhancement. Teachers work together at improving and modifying courseware on the basis of their own experiences and the feedback they obtain from their students. The second motive is cost reduction, because not every teacher will have to develop his or her own courseware."

"We are building this web-based open courseware system upon the latest ICT infrastructure. However, it also requires a significant input from the field of educational science and technology. That is my challenge in this project, where I am in charge of Methodology. After all, sharing is anything but just 'dumping' your courses on the Internet, no more than reusing is just downloading courses. It calls for reengineering of the courseware. First of all,

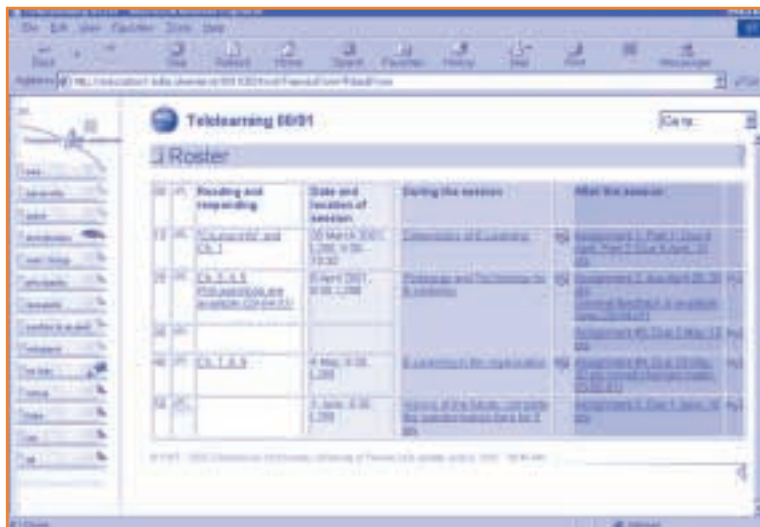
Examples of current projects:

- Collaborative and Network Distributed Learning Environment (CANDLE; EU Fifth Framework Program)
- Using information and communication technology: a process of change in education
- Decision-support for E-learning flexibility and enrichment



Schematic representation
of an open courseware
service based on the
CANDLE philosophy.

you have to modularise courses down to a level of 'meaningful units', which teachers can easily exchange and use to build their own courses. Also, it must be easy to find the courseware you require in the repository. In order to achieve this, you have to assign metadata to all these courseware units."



"Within the Methodology work package of the CANDLE project, we have devised guidelines for the development of tools for this reengineering of courseware. We started with a pedagogical framework that defines six categories for describing a piece of courseware, from its objectives and its structure, down to the context, type of content, tools and finally the roles of, for example, the teacher, student, coach or content expert. This would seem a fairly complete classification as a basis for assigning metadata. After all, it allows you to search for all English-language courses that are aimed at novice telematics students and presented in the form of Powerpoint slides. But in my opinion there is room for more.

I have proposed to incorporate a ranking of the courseware material, based on reviews by users, very much like Amazon.com's famous feature. I think it is valuable to draw upon previous experiences of users and I expect this feature to be incorporated in the system in the near future."

"On the subject of the future, the CANDLE project will be completed within a year and we will present a working web-based system for sharing and reuse of courseware. We are already making proposals for a new European research programme. These proposals centre on wireless technologies, just-in-time flexible learning and expertise on demand. We are also introducing the concept of expertise networks, the idea being that you can view human expertise as courseware that can be used in teaching and training. Up till now, our approach has been rather supply-oriented. It's time to focus on user demand. So, I think there is life after CANDLE."

