

Telematics for Education and Training

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She has been involved in joint research projects on system and software engineering with partners from East European countries and Russia.

Her current research interests are in large-scale systems.

Telematics for education and training as "a key building block" in the new information and knowledge society, has been assigned the role of sustaining economic and social development of Europe. All the presentations made (over 100), the demonstrations (over 30) and workshops organized during the Conference dwelt upon this aspect.

The Proceedings of the Telematics for Education and Training Conference are a "compte-rendu" on the "state-of-the-art" in telematics systems for learning, with respect to both technological and pedagogical innovations, in an European and global context. Specific results of the Research and Development projects carried out under **the European Programme "Telematic networks and services applied to flexible distance learning" (DELTA) within the III Framework Programme** have been highlighted. At the same time, the Conference spotted the initiatives of the IV Framework Programme and the new Telematics for Education and Training subprogram.

More than 70 presentations referred 11 subject areas, as mentioned below:

- Implementing Flexible Open and Distance Education
- Home Learners

- Secondary and Tertiary Education
- Learning Centers
- Large Company
- Interactive Teleteaching
- Simulation
- Producing Learning Material
- Managing the Virtual Space
- Learning Systems - Development and Evaluation
- Technologies and Standards

Some interesting conclusions of the workshop - held discussions and demonstrations are related in the Workshop Annex.

The CEC representatives presented the political strategies and the objectives pursued under the IV Framework Programme on education and training supported by technology and telematics; user-orientation and cost-effectiveness have been remarked as the qualities in demand.

Inter-operability must be treated as a key issue, because of a large community of users involved, the "minimum size" being that of the European Union; in addition a lot of effort has to go into validation and demonstration, as well as into the maximisation of the generic content so that it should become cost-effective.

International experts took the floor for speaking about political, cultural, sociological, psychological and market determinations, which would make the success of the implementation of new learning media. Such determinations included the development of large quantities and high quality educational multimedia resource materials, widely accessible multimedia interpersonal communications, new curriculum models, new technology infrastructures within and between education and training organizations, re-engineering of education and training

institutions. If otherwise possibly divergent, the **Advanced Learning Technology (ALT)** community opinions converged to five main issues:

- **Strategy:** Development of ALT is slower and more complex than expected
- **Technology:** Telecom Tools are adapted to Open Flexible and Distance Learning (OFDL) needs
- **Pedagogy:** OFDL systems must be learner-centred
- **the economic aspect:** ALT must be justified by an increase in productivity
- **the political aspect:** European construction is a dynamic factor for OFDL.

The DELTA project BEACON carried out a market observatory in 11 countries of the EU to investigate the realities of OFDL and the attitudes towards it in different sectors.

Concrete project descriptions for different users groups: home learners, small- and medium-sized enterprises, large companies, secondary and tertiary education, have been reserved extensive room in the Proceedings.

These descriptions reveal one relevant technical, organisational, economic or social aspect of the project or another. Most of the implementation plans promote an evolutionary approach and take possible obstacles and resistance within and outside the involved partnership into careful consideration. The actors in partnership testify a wide range of expertise: learning material producers, telecom operators, IT service and product providers, training bodies, consultancy companies specialised in innovation, user organisation and public authorities. The experts agreed on the fact that Telematics possibilities would induce a number of changes in the organization of learning, and that these changes would not be all of a sudden and would undoubtedly occur as much outside as inside traditional secondary and tertiary education institutions. Many projects' motivation was to help disadvantaged target groups (e.g. employers of SMEs, women / parents returning to work, inhabitants of rural areas) and improve the quality of learning.

One key goal in implementing Open Learning is economically biased: to drastically reduce costs, to maintain efficiency comparable to

traditional teaching, or attain a considerably improved cost-effectiveness ratio.

Some other papers switched on the focus on different components of learning systems: the use of simulation, the production of learning material, the management of virtual space, the development and evaluation of learning systems.

Model-based simulations for instruction, integrated simulation learning environments, exploratory learning and decision games, structuring multimedia courseware, tools for collaborative authoring, hypermedia document editor, generic model for interactive language learning, virtual games, structuring conversation in asynchronous communication system ∴ and other topics, were all contributed. To orientate a user towards the development of ALT, to measure the usability and effectiveness of those technologies - were also given due attention. All papers recognised the need to "empower the users"; not few principles, guidelines and methods have been developed to enable early and continued involvement of users and better mediation between the actors.

The last Section is more technology oriented, and discusses the application of different technologies and standards: the use of innovative telecommunication services, ISDN-based environments, multimedia communication platforms, satellite workshop experiments, vast network with compressed picture system, regional telenetwork through radio links connected to local CATV and satellite, wide band communication network, strength and limitations of gopher and www tools, Common Training Architecture and Common Information Space - reference models and standards (CTACIS).

For those willing to keep in touch, all the papers provided abstracts, data about the authors affiliation, many graphical representations and illustrations, references. Given their comprehensive coverage - political strategies, technical, organisational, pedagogical, economic and social aspects - and the information on the progress of national and international projects, the Proceedings make a valuable guidance for all the actors involved in the development and use of advanced learning technologies: public authorities, training bodies, IT services and products providers, researchers, telecom operators, learning material producers and users community.

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