

EDUCATIONAL TECHNOLOGY: INSTRUMENTATION AND IMPLEMENTATION

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Learning; teaching; the processes of inquiry, synthesis, and communication of concepts and understanding -- all of these areas are being significantly affected by the changing society in which we live. One of the characteristics of this society is the rapid growth of information and information technologies. The purpose of Stream 4 is not to discuss these new technologies in themselves -- many other specialist conferences have this purpose -- but instead to highlight significant research, predominantly European, relating to the nature of the learning experience in learning and social environments in which new technologies play a part. The research reported in Stream 4 covers a broad spectrum of perspectives relating to learning environments in which interactive, computer-related technology is a component. These perspectives range from empirical investigations of the implications of design decisions in electronic educational instrumentations for different groups of learners in different types of learning settings, to theoretical considerations of new paradigms for the organization of education and learning emerging in a so-called "Information Age". Particular attention is given to research methodologies appropriate to current learning situations involving computer-related technology, and to the new paradigms for teaching and learning which may be also emerging.

The keynote speech for Theme 4 is actually two interrelated speeches, presenting different perspectives on the roles of media and human actors when multimedia courseware is used in a variety of learning contexts. Prof. Robert Lewis and drs. Jan Schoenmaker amplify different approaches to the research process in this type of complex human-and-resource setting.

The remainder of Theme 4 is organized in symposia, groups of interrelated papers, a poster session and a closing session. The two symposia both focus on the challenge of implementing adequate and effective research methodologies for studying the impact of technology-enriched school environments over extended periods of time. The first of the symposia presents a comparison of methodologies for such research as have been conceptualized and implemented in a number of different European countries; the second symposium examines in more detail the methodologies and results from one such project, in The Netherlands.

The remainder of the papers in Theme 4 are grouped in 15 clusters, each cluster relating to an aspect of the overall Theme. Some of the clusters relate to research

focussed more specifically on new educational instrumentation itself, as in the subthemes relating to "Computer Simulations: Perspectives and Applications," "Research on Interactive Video," "New Developments in Electronic Learning Resources," and "Educational Software Evaluation." Other clusters are more focussed on research relating to the impact of new technologies in particular learning contexts, such as in relation to curriculum areas ("Applications of Information Technology in Science" and "Second Language Learning and Technology") or in different learning settings ("Technology and Classroom Processes," "Computer Implementation Perspectives", "Perspectives on Technology in the School"). Other clusters relate to more specific aspects of computer-related educational technology in learning and the organization and interpretation of information ("Strategies for Information Handling, Retrieval, and Organization", "Applications of Decision Support Systems"); to research relating to the educational implications of telecommunications ("Organizing Telecommunications for Learning"); and to overviews of research from different national and international perspectives ("International Perspectives on Information Technology In Education.") Finally, research related to more general issues regarding the impact of technology in learning are the focus of the clusters "Perspectives on Effectiveness and Impact of Educational Media" and "Learning in a Technological Context."

Thus, Theme 4 deals with research from many perspectives -- methodological issues, conceptual frameworks, case studies of naturalistic settings, action research, instrumentation - focussed and implementation - focused -- but sharing as a common feature the disciplined examination of learning in technology-augmented settings.