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COURSEWARE IN THE CURRICULUM: DEMANDS ON TEACHERS

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Abstract

Changing demands on teachers make integration of courseware in the curriculum a laborious task. In the three projects presented here strategies are employed and investigated to promote courseware use within the ordinary classroom setting. Carleer describes a teacher-centered implementation strategy and investigated the factors that contributed to a broad and varied integration of computers in the curriculum. Courseware for a process-oriented writing curriculum has been developed by Van der Geest. An extensive formative evaluation was conducted in order to realize well-implementable courseware. Voogt developed courseware for science education. Courseware characteristics intending to influence the planning and coaching behaviour of teachers will be evaluated in her contribution.

Introduction to the symposium

Integration of computer use within the curriculum is a complex undertaking as appears from numbers of studies. Often computer use remains isolated and restricted to activities additional to existing teaching practices. Apparently not only the technical aspects of the computer cause problems, but also the changing demands on teachers make computer integration a laborious task. In this symposium the integration of computer use within the curriculum will be approached from the teacher's point of view.

In the Experimental School Project, schools for secondary education cooperate with a research institute on the theme of computer use in education. The three schools participating in the project are provided with computer and manpower facilities. The project started in 1987 and will continue until 1993. Within the setting of this project, three research studies aimed at the integration of courseware (software and accompanying written materials) in the curriculum.

In the first project Computers in the Pilot Schools a teacher-centered implementation strategy of computers has been employed. In the participating schools a variety of activities for teachers in all curriculum domains were prepared and organized throughout the project. The aim was to investigate which factors contribute to a broad and varied integration of computers in the curriculum.

In the two other projects implementation processes within a specific curriculum domain were studied. In the Computer-assisted Writing Instruction Project and the Computer-assisted Lab Work Project courseware has been designed from an implementation point of view. The aim of both projects was not only to integrate the computer in classroom instruction within the language and science domain but also to achieve innovative curriculum goals. The Computer-assisted Writing Instruction Project focused on a process-oriented approach to written composition. The Computer-assisted Lab Work Project concentrated particularly on students' inquiry skills. So it can be said that in both projects the teacher who is supposed to use the courseware in classroom instruction has to deal with two innovations at a time. In the Computer-assisted Writing Instruction Project teacher-related factors affecting the implementation of courseware were identified. In the Computer-assisted Lab Work Project courseware characteristics intending to influence the planning and coaching behaviour of teachers were evaluated.

A STRATEGY FOR THE INTEGRATION OF COURSEWARE BY TEACHERS

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An aim of the project "Computers in the Pilot Schools" is to investigate a strategy for the integration of computers and courseware in the curriculum by teachers. This project is carried out at two pilot schools in collaboration with researchers of the University of Twente. From the first beginning of the project the focus was on questions and problems of the school as a whole. A case study approach has been carried out in order to take the context into consideration. An important task charged to the researchers is to make the results of their investigation available and usable for other schools.

The strategy for the integration of computers and courseware proposed by the researchers and carried out by the schools can be characterised as a broad multiplier oriented strategy. "Multiplier" means that some teachers who have already somewhat experience in computer use or are interested in computer use monitor their colleagues. Their most important tasks are to diffuse the information they received from the researchers and from the computer coordinator, and to support the use of computers by their colleagues. This reflects the intention to make use of the within school expertise. "Broad" means that each subject area has his "multiplier teacher".

The research is focussed on the results, the problems and advantages of the multiplier strategy.

Data have been collected in different ways. E.g. four times a state-of-the-art questionnaire about computer use has been distributed among all the teachers of the pilot school at the beginning of each school year; lessons, discussions and in-service sessions of teachers have been observed; teacher reports have been analyzed.

Some conclusions of the study are that a multiplier strategy is effective—although at a very low pace— and avoid a great distance between the computer minded