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In the two other projects implementation processes within a specific curriculum domain were studied. In the Computer–assisted Writing Instruction Project and the Computerassisted 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 stategy 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 collegues. 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 collegues. 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 colected 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 teachres have been observed; teacher repports 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

forerunners and other teachers. Computers have beeb used in the the compputer lab as well as in the classroom. A real integration in the curriculum is still an exception. Most of the computer use is additional.

DESIGNING AND TESTING FOR IMPLEMENTATION
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The project Computer-assisted Writing Instruction (1985-1990) was initiated to investigate claims that the computer could serve as an useful tool in procnss-oriented writing instruction. As appears from survey studies of writing achievements of students of secondary school level, most students experience severe problems in producing texts that fulfil their communicative function adequately. This could be due to the little attention that usually is paid to other aspects of writing skill than the 'mechanicals' of text production. In the project an attempt was made to develop courseware for an innovative type of writing instruction in which much attention is paid to defining the communicative goal of the text to be produced and to planning the text with an open eye for the needs of the reader and the consequences for the content of the text.

The material developed should support student writers of secondary school level in their processes of text planning and text production. It was to be used in the traditionally non-machine-supported language arts courses. But especially it was meant to be feasible both for teachers and students in ordinary classroom situations.

To achieve such innovative, well-implementable courseware, a cycle of formative evaluation activities was planned, in order to assess problems teachers and students actually met when using the materials. As soon as plans for or parts of the new materials were available for testing, they were commented on and tried out by users of the target group, that is both teachers and students. A variety of instruments has been used, chosen according to the evaluation question at hand. In an extended field test with eight classes of the target group of students, data were collected and analyzed with regard to factors known to be influential from the educational innovation literature. In a cyclic process, the experimental materials were repeatedly revised on the basis of the results of the evaluation activities. Subsequently the feasibility and effectivity of the revised materials has been assessed in an effect study in nine classes of secondary education (N = 200).

In the paper presentation, attention will be paid to the design of the formative evaluation study and the revision based on its results. The methods used will be informally evaluated for their merits and demerits with regard to usability and practicality. The process of revision on the basis of the data collected will be described.

The following study of the feasibility and effectivity of the revised materials, focused at students' and teachers' perception of the materials and the changes in achievements that could be related to the use of the materials. Quantitative and qualitative measures were combined. Results with regard to the feasibility of the writing courseware, particularly as experienced by the teacher will be reported.