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TEACHER MATERIALS AS A PART OF COURSEWARE PACKAGES: CURRENT SITUATION AND DESIRABLE DIRECTIONS

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Introduction

Central to the implementation of computers in education is the classroom teacher (Office of Technology Assessment, 1988). Many teachers, if they are using computers at all, are still inexperienced users (Pelgrum & Plomp, 1991). In this initial implementation stage small scale successful experiences in their own classroom practice are an important factor in stimulating further use of the innovation (Fullan, Miles & Anderson, 1988). These experiences help teachers in acquiring clarity about the meaning and potential of the innovation, in gaining confidence in their own competence, and in developing their own view of the appropriateness of the innovation for the students and themselves.

Successful experiences in the initial implementation stage can only take place when teachers have high quality courseware at their disposal (Van den Akker, Keursten & Plomp, 1992). We define courseware as: an educational package, comprising at least computer software and written materials (for teachers and students). According to this broad definition, courseware is not restricted to drill-and-practice or tutorial applications. A courseware package can also consist of open ended software (like databases or word processors) and other (written) materials that induce classroom activities related to the software.

At the moment we are engaged in a five-year study in which we investigate which characteristics of courseware, especially teacher materials, contribute to successful implementation experiences in the initial implementation stage. In the first phase of this study design guidelines for courseware materials were formulated based on: an extensive analysis of empirical research literature; an analysis of the functions the materials should have for teachers; and three pilot projects. In the second part of the study we are testing the effectiveness of these guidelines in a large field experiment, in which an existing courseware package will be compared with an experimental version of the same package, developed in accordance with the design guidelines.

The literature review revealed that in research on the implementation of computer use in education, only limited attention is paid to teacher materials. Little is known about the current situation regarding teacher materials. For that reason we set up a special in depth study, focused on the following question:

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- Do the currently available teacher materials within courseware provide teachers with adequate support to prevent or diminish implementation problems?

This paper will describe the design and outcomes of this study.

Method

From the available research literature it was apparent that teachers experience four central problems when implementing courseware. These are: the lesson preparation is complex and time consuming; a lack of background knowledge (leading to uncertainty); difficulties in changing their own role; an unclear view on learner effects (Van den Akker et al., 1992). These central problems were the starting point for a screening of currently available teacher materials that are part of courseware. To ensure the feasibility of the study, we limited the screening to packages intended for lower secondary education (age 12-15). We analyzed all courseware packages for lower secondary education that are currently on the Dutch market and that are intended for classroom use (167 packages).

For this screening of teacher materials we formulated a list of twelve questions, that were answered for each courseware package. Examples of these questions are: are the objectives of the package stated in the teacher materials; do the teacher materials contain specific advice for the preparation of the lessons; are there suggestions for monitoring student progress? This resulted in numerical information about the percentages of courseware packages for which a question could be anwered affirmatively. To gain more insight in how these characteristics are realized in teacher materials, we also quoted typical passages from packages in which the elaboration of one of these characteristics is extensive, about average, or minimal.

Results/conclusions

Data analysis was finished recently. Some general conclusions are:

- Currently, teacher materials provide very little support in diminishing implementation problems.
- Less than half of the packages contain procedural how-to-do-it advice for teachers. Particularly advice for lesson preparation and suggestions for monitoring learner effects are almost always lacking.
- In packages that do contain procedural advice, this advice is often limited to some general suggestions.

In the paper these (and other) results will be illustrated with typical passages from teacher materials.

Discussion

In discussing the results, we will relate the findings from this study to the more general literature about the role and functions of teacher materials in (curriculum) implementation. Based on this literature and on the preliminary results from our five-year study, we will discuss directions in which teacher materials could be improved.

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