Chapter XV

Educational Multimedia and Teacher Competencies

Claus Witfelt
Danish University of Education, Denmark

This chapter is a step on the way to establishing a multimedia didactics for compulsory school. In the chapter we review findings from the European PEDACTICE project, which deals with these issues. It focuses on describing central teachers' competencies, related to the use of educational multimedia in compulsory school.

INTRODUCTION

The European PEDACTICE project – deals with the use of educational multimedia in compulsory school. Teachers' needs for new competencies related to the use of educational multimedia is one of the major topics studied and examined empirically in this project. The project will end ULTIMO 2000 by constructing a course module for teachers, especially pinpointing the competencies needed in order to use educational multimedia effectively in teaching and learning. All findings can be read in full in the papers in the reference list

Before dwelling on the new competencies needed by teachers in order to use multimedia, we will look at some context issues for using educational multimedia. From that point of departure, we will describe a taxonomy for teacher competencies and continue by describing key issues for using educational multimedia.

Further we proceed to describing our investigations in technical teacher competencies and finally outlining how we will develop a course module to update the teacher competencies described.

WHAT IS EDUCATIONAL MULTIMEDIA?

Multimedia is a heavily overloaded word. In this project we focus on *educational* multimedia as a concept of both traditional multimedia encyclopedias (like for instance Dorling Kindersley Eyewitness Encyclopedia series), training programs adding sound and graphics, and Internet-based services and the use of World Wide Web as a tool for learning in general.

The scenario model, a tool for classifying learning situations with multimedia	
Scenario	Examples
Linear narrative	The use of traditional computer-based tutorials or video sequences.
Non-linear narrative	Hypermedia encyclopedias and the World Wide Web.
Guided discovery	The use of applications with functions that can pinpoint or maybe even correct errors.
Production tools	The use of multimedia authoring packages and Web production tools, but also word processors and graphics applications.
Communication tools	The use of e-mail, chat and electronic conferences.

In our work, we found it necessary also to develop a model for addressing different learning situations, relating to using multimedia in compulsory school: the scenario model. The scenario model (Andresen, 1999; Witfelt, 2000) is a tool for classifying learning situations with multimedia for teachers, researchers and producers of educational multimedia. The scenario model differentiates the use of multimedia in learning situations into five basic scenarios.

NEW TEACHER COMPETENCIES
Context issues for new teacher competencies

Society changes from an industrial culture to a post-modern culture. The post-modern society develops so fast that the agents interacting in this society cannot just stick to a curriculum once learned. On the contrary, they have to constantly navigate in vast amounts of knowledge and pick just the topics they need. Media like multimedia-CD-ROMs and the World Wide Web provide easily accessible environments to those vast amounts of knowledge. The context-issues are important reasons for using multimedia in compulsory school.

These are the external motivational factors, but there might also be internal motivational factors for using multimedia. Motivation is altogether a very important issue. Most students find it motivating that they themselves have to take responsibility for their own learning. This may result in improved learning, but this learning is difficult to measure.

When discussing motivation we have also found that a large group of students finds it motivating in general to work with the computer. From one point of view, it is important that the students develop ICT-literacy and the only way to do this is by integrating the technology in the ordinary work. On the other hand, the use of the technology may take valuable time from other subject-related issues, so interacting with the machine is not a means in itself.

We recognize a general picture in the pupils' work with technology from our empirical results: constructors and jack-of-all-trades. The constructors work with the technology and use it as a tool. The technology is by no means interesting in itself. The mantra for this group of pupils is to get the work done in the best possible way with whatever tools are at hand. The jack-of-all-trades *likes* the technology. (S)he can spend hours just

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