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Borch, Ole; Kirkegaard, B.; Knudsen, Morten; Nielsen, Kirsten Mølgaard

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# Distributed Project Work

O. E. M. Botch, B. Kitkegaard, M. Knudsen, K. M. Nielsen

## Abstract

Project work has been used for many years at Aalborg University to improve learning of theory and methods given in courses. In a closed environment where the students are forming a group in a single room, the interaction behavior is more or less given from the natural life. Group work in a distributed fashion over the Internet needs more attention to the interaction protocol since the physical group room is not existing. The purpose in this paper is to develop a method for online project work by using the product Basic Support for Cooperative Work (BSCW). An analysis of a well-proven protocol for information exchange in the traditional project environment is performed. A group of teachers and a student group using small project examples test the method. The first test group used a prototype for testing and found the new activity synchronization difficult to adopt, so the method was finally adjusted to be very precise and with success used on the second test group. Distributed project work is coming pretty soon and with little improvement in new tools, projects in different topics with a large and heterogeneous profile of users are realistic.

**Keywords:** Distance learning, distributed project work, BSCW.

## 1 INTRODUCTION

Today an increasing number of educational institutions are providing online courses for the market in a speed and quantity, which doesn't match the potential number of students.

Currently Aalborg University (AAU) has a problem oriented and project organized learning process in contrast to many other educational sites. The students are making projects in groups spending around 50 percent of the study time and ends up with a written report and often a prototype implementation of a problem solution. The theoretical support is given via project-related courses in classrooms, but an increasing amount of online information and courses, are becoming important contributions to the project work.

University of Aalborg estimates and foresees that one third of the students within 5 years will be 'loosely attached students' and among them 'on-line students'. From experience, we know that project work increase the learning effect supported by courses relevant for the project. At the same time, the University has a very fine method for project work. It is therefore essential that on-line project work is developed and offered along with courses already being developed for termite students. Often students and other pupils are on-line at home, and to minimize connectivity costs, online projects work should be limited to use of email, news, upload and download of documents in a batch activity. Courses supporting the project should be stored on CD due to high performance in speed and complexity.

The Internet based situation differs in terms of physical presence of teachers, supervisor and students. Since the project work is a challenge to pick up knowledge and learn more, the purpose is to make a project in a distributed environment, but with respect to all the good parts from the existing way to make 'off line' projects. The major difference from today project work is the lack of the physical presence of the group room.

The goal for this paper is to describe a method, which is useful for distributed project work. First an analysis of the interaction patterns in a project work is described. Secondly in the design phase, the pattern is mapped into the online environment. Finally a test is made on two different groups with two project proposals to evaluate the process.

## 2 ANALYSIS

In a closed environment the interaction between members of a project group is well known from the 'real' life. Information and knowledge is picked up from courses, supervisor, WWW etc. and stored in the group environment as paper sheets in different folders, books, the important blackboard and the note board.

Moving to the Internet environment, the group will still exist, but the group misses the room for discussions, meetings etc. The project work is therefore identified as a collection of documents and references kept on a network server where the group members are clients, imposing further demands on organization of information.

Developing a new information flow environment firstly need an analysis of the existing interaction patterns of products. The well-proven method for project work at the University is used. In the following an object oriented modeling approach is used.

### 2.1 Flow of information

A project group is regarded as an object with aggregations and associations. A group 'has a' supervisor object, 'have' student objects, a room, a secretary etc. which preassume that they all are aggregated (tilted square) objects to the group. Courses, libraries, WWW etc. are more loosely coupled and therefore regarded as associations (dotted line).