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A Survey of Technologies Supporting Virtual Project Work

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Abstract

Technologies constructed with the purpose of supporting virtual learning environments are not neutral. They are reflecting a certain understanding of communication and a certain understanding of learning, which is represented and conserved in the functionality of the system and in the interface design. However, this underlying pedagogy is rarely explicitly defined.

The purpose of this paper is to define a methodical grounding that can be used when evaluating technological solutions that can support problem oriented project work (POPP) (Illeris, 1981; Dirckinck-Holmfeld, 1990). The problem oriented project work is a student driven process. The problem is defined and formulated by the students in collaboration, and they are in control of the process negotiating and defining what to be learned. The challenge is to design environments and choose between technologies where these processes can develop.

A survey of learning technologies can have different approaches and different aims.

One approach can be functional motivated and consist of a technical specification of functions that must be included in a good design. While analyzing technologies that are supporting communities of practice, Etienne Wenger (2001) puts forward a set of technical functions that is used as a basis when evaluating several computer systems. The problem with this kind of specification is that it gives a technical and one-dimensional understanding of a virtual community of practice (Wenger, 1998), ignoring that community of practice is a pluralistic concept with several expressions.

Another approach is to base the survey on a pedagogical or learning theoretical mapping. Dr Tom Reeves (1997) has described what he calls fourteen pedagogical dimensions of computer-based education (CBE). The universal dimensions are used to evaluate CBE and to do comparative evaluations. But universal dimensions will only exceptionally correspond with the specific aspects of different educational systems and different pedagogies. They become too general and will have limited value when evaluating technological solutions for project work.

This paper is therefore based on a third approach where the focus is on a concrete learning strategy, project work, and where the survey is based on the different processes and activities involved in project work. In order to be adequate, a survey of learning environments must express something about how different technologies can support different learning processes.

The evaluation of project work is based on the theories of *community of practice* (Wenger, 1998), and the understanding of meaning as negotiated in a practice. The negotiating of meaning is an intricate process. It is not limited to linguistic behavior. It also includes our social non-verbal interactions and relations. Wenger explains the negotiation of meaning as involving two constituent processes: *participation* and *reification*. These two processes exist in duality, affecting each other and being the source of development to each other.

There are not many systems explicitly oriented to virtual project work. Neither is there only one design that can support project work. This paper is evaluating a branch of different systems, FirstClass, Virtual U, Lotus Learning Space, Quick Place, Blackboard and Igroup, discussing how they can support negotiation of meaning within project work.

Experiences of using the different systems and several examples are collected at Aalborg University, which offers an extensive online education based on problem oriented project pedagogy.

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