

# Introduction: Exploring the Potentials of Networked-computing Support for Face-to-face Collaborative Learning

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Much research into technology-enhanced learning reflects a future of online collaboration, distance learning and virtual teaching<sup>1</sup>. These visionary views consider networked-computing support primary as a means to bridge time and space. It is assumed that these collaborative technologies connect learners who couldn’t collaborate otherwise. This partial orientation towards networked computing may limit our understanding of the potentials of such technologies for collaboration and learning. Collaborative technologies may also provide effective support for learners who meet face-to-face to collaborate, to discuss and to solve problems [2].

Scenarios studies indicate the school will remain the most important place for learning. Most learning in the nearby future still takes place on-campus, although ‘blended mode learning’ with a strong ICT component is widely used. ICT use has become commonplace, but it has not radically affected the nature of the teaching and learning. It gradually reshapes traditional on-campus practice [1].

## 1 Computer support for face-to-face learning situations

The starting-point of the workshop are the notions that *face-to-face learning situations* are an important setting for collaboration and learning *and* that collaborative technologies can support these processes effectively. We believe that one of the most important challenges for technology-enhanced learning is to provide learners who are in same room with the appropriate technologies that will facilitate their collaborative learning activities. The aim of the workshop is to set some directions of how this may be achieved.

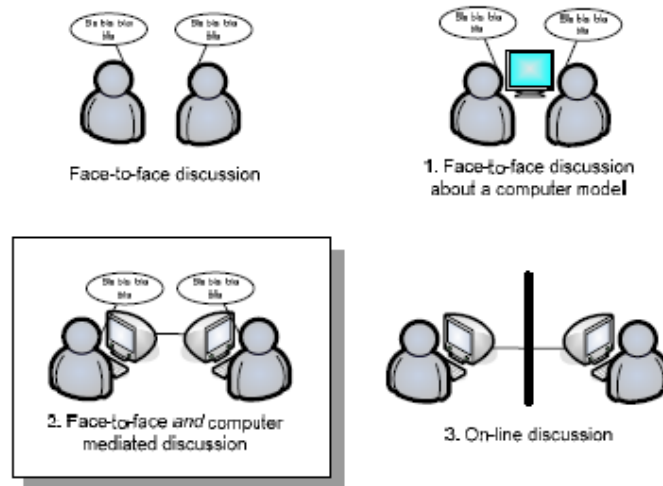
We make a distinction between three situations of *technology-enhanced collaborative learning* (Fig. 1).

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<sup>1</sup> For example, the fast majority of research on networked-learning environments presented on the international conference on Computer Supported Collaborative Learning (CSCL2003) focused on on-line, virtual meetings between learners [3].

In the *first situation* (upper right corner of figure 1), learners interact with a standalone computer model that represents and simulates a certain problem situation. A computer model typically displays processes that change with respect to time. Learners can manipulate the model and get feedback about their intervention by running a simulation. This form of technology-enhanced learning – sometimes referred to as ‘*single-display groupware*’ (SDG) – has received some investment in terms of research.

The *third situation* (lower right corner of figure 1) represents networked learning environments that aim to *connect learners who are dispersed in time and/or space*. The majority of research into technology-enhanced learning focuses on this type of collaboration. For many researchers, it represents the archetypal context for computer supported collaborative learning (CSCL).



**Fig. 1.** Three technology-enhanced collaborative learning situations.

The participants of the workshop will focus on the second situation (lower left corner of figure 1): networked-computing support for face-to-face collaborative learning situations.

## 2 Workshop Theme

The theme of networked-computing support for face-to-face collaborative learning has received relatively little attention within the educational community. Still, it seems to be a promising direction for technology-enhanced learning. Collaborative technologies have the potential to create a sustainable effect on classroom practice. The main objective of the workshop is:

to examine face-to-face collaborative learning situations and to discuss the potentials of networked-computing support for these situations.

The workshop theme will be approached from three perspectives: pedagogical, technical and the perspective of the researchers. These three perspectives are addressed in three different sections.

### 2.1 Pedagogical perspective

Section I focuses on the pedagogical aspects. Overdijk and van Diggelen focus on the way student groups interact with educational technology. They state that educational technology isn't a stable factor but gets its meaning in practice when students work with the technology. They refer to this process of adaptation as technology appropriation. Technology appropriation helps us to understand why and when new educational technologies work in practice.

Tateo et al. stresses the importance of Participatory Design (PD) to get a better fit between new educational technology and user's activities. PD could reveal issues that may hamper the introduction of educational by involving those who are most affected by the design, i.e. the teachers. Teteo et al. present an explorative study that they carried out among a group of Italian teachers. They conclude that pedagogical support is needed for successful implementation of educational technology in the classroom.

Lotan-Kochan et al. also focus on the teacher. They found that teachers identified several tasks that are crucial during computer supported collaborative learning. The challenge is to provide teachers with the appropriate support – technological as well as pedagogical – that enables them to carry out these tasks effectively.

### 2.2 Technical perspective

Section II focuses on technological aspects of computing support for face-to-face collaborative learning situations.

*Malandrino and Manno* present a computer-networking architecture that takes into account the specific requirements that arise from the on-campus technical situation. They present an architecture whose goal is to minimize impact on management and leverages on the LAN setting to ensure extendibility, easy deployment and a uniform work environment by hiding the client-server architecture with a dynamic discovery protocol for bootstrap.

*De Chiara and Volpe* discuss the development of FireFly, a modular system that allows extensibility and composability. FireFly is written using AJAX, a set of technologies for developing rich web-based application that follow the client-server paradigm. Authors' objective is to develop a client-server system that can be executed smoothly on usual desktop PC, requesting the lesser possible installation effort and achieving enough expandability to allow further extensions'.

### 2.3 Researchers perspective

From the articles that take a pedagogical perspective one can conclude that there is still a lot of research needed that will increase our understanding of when, how and

why new educational technologies work in practice. Researchers could benefit from tools that automate the collection, transcription and analysis of face-to-face and computer-mediated actions and interactions. *Corbel, Girandot and Lund* addresses this topic in their article. They ‘propose a model of designation and extraction of parts of human interaction corpora using the anchor and link concepts that allow for experimenting on the reuse of analyses of human interactions’.

## References

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