



## Teachers' attitudes to and beliefs about web-based Collaborative Learning Environments in the context of an international implementation

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### Abstract

Fifty-six teachers, from four European countries, were interviewed to ascertain their attitudes to and beliefs about the Collaborative Learning Environments (CLEs) which were designed under the Innovative Technologies for Collaborative Learning Project. Their responses were analysed using categories based on a model from cultural-historical activity theory [Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsultit; Engeström, Y., Engeström, R., & Suntuo, A. (2002). Can a school community learn to master its own future? An activity-theoretical study of expansive learning among middle school teachers. In G. Wells & G. Claxton (Eds.), *Learning for life in the 21st century*. Oxford: Blackwell Publishers]. The teachers were positive about CLEs and their possible role in initiating pedagogical innovation and enhancing personal professional development. This positive perception held across cultures and national boundaries. Teachers were aware of the fact that demanding planning was needed for successful implementations of CLEs. However, the specific strategies through which the teachers can guide students' inquiries in CLEs and the assessment of new competencies that may

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characterize student performance in the CLEs were poorly represented in the teachers' reflections on CLEs. The attitudes and beliefs of the teachers from separate countries had many similarities, but there were also some clear differences, which are discussed in the article.

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## 1. Introduction

The European Innovative Technologies for Collaborative Learning Project (ITCOLE) concentrated on creating software tools that support web-based Collaborative Learning Environments (CLE) (see Rubens, Emans, Leinonen, Skarmeta, & Simons, *this issue*) and on delineating efficient pedagogical practices for CLEs, on testing and refining them and eventually disseminating them throughout the European education landscape. The pedagogical partners of the project consisted of four research groups from four European countries: Finland, Greece, Italy and the Netherlands (Ligorio & Veermans, *this issue*).

A worldwide study (Kozma, 2003) of teachers' and students' practices in classrooms, where innovative pedagogical practices supported by technology have been introduced, showed that two patterns of classroom practice, "Student Collaborative Research" and "Information Management", are more likely to be associated with new pedagogical skills for teachers. The same patterns were associated with the acquisition of ICT, problem solving and collaboration skills for students. Both patterns have strong resemblances with the expected practices in the CLEs that were implemented during the ITCOLE project. Moreover, CLEs have influenced the development of the Computer Supported Collaborative Learning paradigm (Dimitrakopoulou & Petrou, *in press*; Koschmann, 1996). In recent literature, CLEs have been associated with the notion of powerful learning environments characterized by special emphasis on the development of intentional learners and the collaborative construction of knowledge within learning communities. Support for metacognition, model building, and emphasis both on the process and on the product are also important aspects of the developed powerful learning environments (Vosniadou, 2001; Vosniadou & Kollias, 2003).

However, the successful implementation of CLEs depends on sensitive decisions that teachers have to make in their everyday practice. It has been pointed out that such decisions depend on teachers' attitudes to and beliefs about the particular learning environment (Schulman, 1986). Therefore, the analysis of teachers' conceptions of CLEs can provide insights on the prerequisites for their successful implementation.

According to Dexter, Anderson, and Becker (1999) "The teachers who had adopted more progressive teaching practices over time felt that computers helped them change, but they did not acknowledge computers as catalyst for change; instead they cited reflection upon experience, classes taken, and the context or culture of the school." (p. 221). Therefore, if teachers' conceptions of CLEs reveal that CLEs facilitated teachers' reflections upon their experience, awareness of the importance of the school culture towards educational innovation, and awareness for the need of professional improvement, then we would have reasons to expect that CLEs are particularly promising in facilitating teachers to adopt more progressive teaching practices.

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