



Computer Supported Collaborative Learning in Education and Training

Tools and Technologies

By Gary Woodill, Ed.D.



Computer Supported Collaborative Learning in Education and Training: Tools and Technologies

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About the Author

Dr. Gary Woodill

Director of Research and Analysis

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Gary Woodill started his career as a classroom teacher in 1971, and has been involved with the use of computers in education since 1974, when he was introduced to the PLATO system for computer assisted instruction as part of his Masters studies in educational psychology. He helped develop educational materials for a Canadian videotext system in the late 1970s, and in 1985 started a course for teachers on computer in education at Ryerson University in Toronto.

In 1984 Gary received a doctorate in applied psychology from the Ontario Institute for Studies in Education (OISE) at the University of Toronto. In 1993 he co-founded an educational multimedia company that developed a number of educational CD-ROMs for children. In 1998 he designed an adaptable learning management system and has developed over 60 online courses for various corporate clients.

Gary is the author of three recent research reports on emerging e-learning published by Brandon Hall Research, where he is Director of Research and Analysis. In addition, Gary manages the Innovations in Learning Conference and presents workshops on the topics he is researching.

He lives with his wife in Gores Landing, Ontario, Canada.



Introduction

The ability to work collaboratively is an increasingly important skill and can be a stimulus to learning, which makes it a competitive advantage. If used properly, computer-based technologies can be very useful in collaborative learning. Computer Supported Collaborative Learning (CSCL) systems can be used to support, record, and analyze the processes of learning and are valuable for “making thinking visible, sharable, reflectable, and modifiable by the participating learners” (Miyake, 2007, p. 249). These tools include e-mail, Web conferencing software, instant messaging, real-time collaboration technologies, live presentation tools, peer-to-peer programs, interactive whiteboards, “telepresence” software, and online workspaces.

This research report is designed as a survey of tools and technologies that can be used to support collaborative learning in training and development. In a previous Brandon Hall Research report, *Computer Supported Collaborative Learning in Training and Development: Research and Practice*, I reviewed the literature on the concept of CSCL and its effectiveness. I stated that CSCL remains an academic field, still mostly centered on schools and universities. Of the more than 500 references to collaborative learning that I found, only about 20 dealt with corporate training and development. That does not mean that collaborative learning doesn't take place in training settings but that almost all the research on CSCL has been about its application in school and post-secondary settings.

This report is a survey of available tools and technologies for collaborative learning, but it is not a product knowledge base or set of reviews. My purpose is to alert the reader to the myriad possibilities available when choosing tools and technologies for collaborative learning. The inclusion or exclusion of a particular tool in this report should not be considered a positive or negative recommendation. Readers who are interested in using these tools will need to investigate each of them in more depth.

Collaborative learning in the workplace is often called something else. Other terms include “cooperative learning,” “social

learning,” “organizational learning,” “participative learning,” “networked learning,” and “collaborative networked learning.” Each of these terms maintains its own nuances, with minor differences, but they all include collaboration and learning at the core.

A parallel field of study, called Computer Supported Cooperative Work (CSCW), which also started in the 1980s, has developed very little research on learning or training. Surprisingly, CSCL and CSCW each has its own books, journals, and conferences, but the two never seem to have ever seriously connected with one another. A few articles exist on learning in the CSCW literature, but mostly they are about office automation and cooperative work processes.

A new set of Internet technologies, known as Web 2.0, is having a major impact on furthering computer supported collaborative learning (Alexander, 2006). The technologies specifically being designed for learning, sometimes referred to as E-learning 2.0 (Downes, 2005), are transforming learning as a classroom phenomenon to something that takes place at any time and any location. Blogs, wikis, social bookmarking, social networking, and peer-to-peer technologies are, therefore, all potentially part of CSCL in the workplace.

Online collaborative learning often occurs within *environments* specifically built for collective interaction. These environments can be connected by several different kinds of *networks*. Within these environments, communities are built and maintained using a variety of collaboration *tools* (Figure 1). Taken together, these three categories, along with their integration, make up the collaborative learning technologies discussed in this report.