

Preface

This book brings together 14 contributions from researchers and practitioners actively involved in the field of computer-supported collaborative learning (commonly referred to as CSCL). The authors describe a variety of different learning situations, some undoubtedly very successful and some perhaps not quite so. Taken as a whole, the work presented here is richly illustrative of the wide diversity of research and practice currently being undertaken in this rapidly expanding field.

In an earlier book (Roberts, 2003), I expressed the view that online collaborative learning was an idea whose time had come. My confidence in the truth of this statement has grown stronger over the intervening period. Not only are students across the globe now coming to expect that their courses will be supported by online web-based materials and resources (and becoming indignant if they are not), but there is also a growing recognition among educators and students alike that the provision and enhancement of generic skills that can be used in “the real world” outside of academia is of vital importance. Among the most highly regarded of these skills can be counted the ability to work productively in teams, in both social and work settings, especially in situations where the various team members may have diverse backgrounds, experiences, and opinions. Indeed, it is in just such an environment that collaborative work can bring the greatest benefits.

Each of the authors represented in this volume has much to contribute to the central questions of how students can learn collaboratively using the new technologies, the problems that can be expected, and the benefits that may ensue. In their various ways, they examine how computer-supported group work differs from face-to-face group work, and the implications for both educators and students.

The aim of the first chapter, *Computer-Supported Collaborative Learning in Higher Education: An Introduction*, is to act as a jumping-off point for both researchers and practitioners interested in exploring this area for the first time. The chapter has three main objectives: first, to describe some of the benefits and problems that can be expected in a CSCL environment; second, to give an outline of some of the practical steps that need to be considered for CSCL to be successful; and third, to provide pointers to some of the more recent research reported in the literature. No attempt has been made to provide an exhaustive list of all of the research in this area – there is far too much! The

selection of what gets a mention is, therefore, highly subjective. A list of references is provided at the end of the chapter for those seeking to pursue particular issues in more depth.

In Chapter 2, *Online Group Projects: Preparing the Instructors to Prepare the Students*, Valerie Taylor makes the excellent point that while group projects are often included in on-campus classes, instructors teaching computer-supported courses are frequently reluctant to attempt similar group projects online. She stresses the importance of staff development — if the process of integrating group work into an online environment is to be successful, staff must be trained appropriately. The chapter outlines lesson modules for teaching online instructors to use group projects in their courses.

In Chapter 3, *Time, Place and Identity in Project Work on the Net*, Sisse Siggaard Jensen and Simon Heilesen identify some of the fundamental conditions and factors that affect collaborative project work on the net. Understanding them is fundamental to developing key qualities in net-based collaborative learning such as confidence, reliability, and trust. They argue that collaboration and social interaction develop in continuous oscillations between abstract and meaningful frames of reference as to time and place, and that such oscillations condition the creation of a double identity of writer and author modes in social interaction. Further, they argue that collaborative work creates an ever-increasing complexity of interwoven texts and that strategies must be developed for organizing these.

In Chapter 4, *The Collective Building of Knowledge in Collaborative Learning Environments*, Alexandra Okada investigates how collaborative learning environments (CLEs) can be used to elicit the collective building of knowledge. This work discusses CLEs as lively cognitive systems and looks at some strategies that might contribute to the improvement of significant pedagogical practices. The study is supported by rhizome principles, whose characteristics allow us to understand the process of selecting and connecting what is relevant and meaningful for the collective building of knowledge. A brief theoretical and conceptual approach is presented, major contributions and difficulties about collaborative learning environments are discussed, and new questions and future trends about collective building of knowledge are suggested.

In Chapter 5, *Collaboration or Cooperation? Analyzing Small Group Interactions in Educational Environments*, Trena Paulus illustrates how computer-mediated discourse analysis (CMDA) can be used systematically to investigate online communication. She argues that intended outcomes of learner interactions, such as meaningful dialogue and joint knowledge construction, must be identified and analyzed to better understand the effectiveness of online learning activities. The CMDA approach is illustrated through analysis of a synchronous chat held by a three-person graduate student group as it completed a course assignment at a distance.

In Chapter 6, *Mapping Perceived Socio-Emotive Quality of Small-Group Functioning*, Herman Buelens, Jan Van Mierlo, Jan Van den Bulck, Jan Elen, and Eddy Van Avermaet demonstrate the influence of the socio-emotional quality of small-group functioning in a collaborative learning setting. They report a case study from a sophomores' class at a Belgian university, where the subjects were 142 undergraduates subdivided into 12 project groups of 12 students each. The aims of the study were to map group members' perception of the socio-emotive quality of their own group functioning and

to examine if and how problems in groups of learners can be detected as soon as possible. Having demonstrated that dysfunctionalities within groups can be detected rather early, the authors suggest that corrective interventions should be implemented when they can still have an effect.

In Chapter 7, *A Constructivist Framework for Online Collaborative Learning: Adult Learning and Collaborative Learning Theory*, Elizabeth Stacey reviews and discusses theoretical perspectives that help to frame collaborative learning online. The chapter investigates literature about the type of learning and behavior that are anticipated and researched among participants learning collaboratively and discusses how these attributes explain computer-supported collaborative learning. The literature about learning is influenced by perspectives from a number of fields, particularly philosophy, psychology, and sociology. This chapter describes some of these perspectives from the fields of cognitive psychology, adult learning, and collaborative group learning.

In Chapter 8, *The Real Challenge of Computer-Supported Collaborative Learning: How Do We Motivate ALL Stakeholders?*, Celia Romm Livermore starts from the premise that to be effective, computer-supported collaborative learning has to be intrinsically motivating. In contrast to much of the literature in the field, which focuses almost exclusively on the needs of students, the chapter discusses three groups of stakeholders whose concerns and motivation have to be considered: students, instructors, and institutions. She introduces a paradigm that integrates the needs of the above three stakeholders. This is followed by a description of the Radical Model, an innovative approach to computer-supported collaborative learning that is an example of applying the proposed paradigm in practice. The chapter concludes with a discussion of the research implications arising from the model.

In Chapter 9, *Use and Mis-Use of Technology for Online, Asynchronous, Collaborative Learning*, William Klemm suggests that online learners are typically considered to be isolated learners, except for occasional opportunities to post views on an electronic bulletin board, and that this is not the team orientation that is so central to collaborative learning theory. So why does formal collaborative learning receive so little attention in online instruction? First, the teachers who do value collaborative learning generally are traditional educators and not involved in online instruction. Second, online teachers often have little understanding or appreciation for the formalisms of collaborative learning. In this chapter, the inadequacies of electronic bulletin boards, which, although universally used, do not readily support collaborative learning, are explained. As a better alternative, shared-document conferencing environments that allow learning teams to create academic deliverables are discussed. Finally, examples are given of well-known collaborative learning techniques and how these are implemented with shared-document conferencing.

In Chapter 10, *The Personal and Professional Learning Portfolio: An Online Environment for Mentoring, Collaboration, and Publication*, Lorraine Sherry, Bruce Havelock, and David Gibson describe the Personal and Professional Learning Portfolio (PLP), a software application designed to provide a flexible learning environment suitable for group collaborative work. After giving a description of the PLP's origins, structure, and pilot implementations across a range of educational settings, they detail two higher education sites to illustrate the key issues involved. The primary intent of the chapter is to bring awareness of the PLP to new audiences and expand consideration of its

potential applications, while at the same time shedding light on the factors that influence adoption of collaborative technologies in institutional settings.

In Chapter 11, *Problems and Opportunities of Learning Together in a Virtual Learning Environment*, Thanasis Daradoumis and Fatos Xhafa explore new ways of collaborative learning in a virtual learning environment based on acquisition of knowledge from previous experience. They identify both the problems faced in real collaborative learning practices and the ways these problems can be overcome and turned into opportunities for more efficient learning. These issues concern pedagogical, organizational, and technical elements and constraints that influence the successful application of collaborative learning in distance education, such as efficient group formation, the nature of collaborative learning situations that promote peer interaction and learning, the student roles and tutor means in supervising and guiding the learning process, and an effective assessment of group work. They argue that the proposed methodology not only achieves better learning outcomes but also contributes to the tutor's professional development in a networked learning environment that facilitates social interaction among all participants, while building on existing skills.

In Chapter 12, *Web-Based Learning by Tele-Collaborative Production in Engineering Education*, Amiram Moshaiov deals with the need and the potential of reforming design projects into web-based learning by tele-collaborative production in engineering education. The chapter provides an overview of related topics including the impact of computer-mediated communication (CMC) on engineering and engineering education, the role of social creativity and dominance of multi-disciplinary thinking in modern engineering, assessing designers and the design process, and more. In addition to discussing the need and the potential of reforming engineering design projects, two major strategies for web-based learning by collaborative production in engineering education are discussed. It is concluded that short projects focusing on early design stages should be encouraged for the current assimilation of tele-collaboration, whereas long and complex design tasks may currently be better handled in a local framework.

In Chapter 13, *Relational Online Collaborative Learning Model*, Antonio Santos Moreno describes an instructional online collaborative-learning model that addresses the phenomenon from a systemic human relations and interaction perspective. Its main purpose is to aid students in their social building of knowledge when learning in a CSCL environment. The model argues that knowledge building in a networked environment is affected by the communication conflicts that naturally arise in human relationships. Thus, the model is basically proposing a way to attend to these communication conflicts. In this line, it proposes a set of instructional strategies to develop the student's meta-communication abilities. The concepts and instructional suggestions presented are intended to have a heuristic value and are hoped to serve as a frame of reference to: 1) understand the complex human patterns of relationships that naturally develop when learning in a CSCL environment, and 2) suggest some basic pedagogical strategies to the instructional designer to develop sound online networked environments.

In Chapter 14, *Online, Offline, and In-Between: Analyzing Mediated-Action Among American and Russian Students in a Global Online Class*, Aditya Johri argues that computer-supported collaborative learning is a situated activity that occurs in complex settings. This study proposes a sociocultural frame for theorizing, analyzing and de-

signing online collaborative learning environments. The specific focus of this study is: learning as situated activity, activity theory as a theoretical lens, activity system as an analytical framework, and activity-guided design as a design framework for online learning environments. Using data gathered from a naturalistic investigation of an online collaborative learning site, this study reveals how these lenses and frameworks can be applied practically. The study also identifies the importance of design iterations for learning environments.

It is the editor's hope that the 14 chapters that comprise this book prove to be both stimulating and thought-provoking for readers interested in the field of computer-supported collaborative learning. If some of the information presented here inspires teachers to experiment with new ways of teaching, while perhaps other material provokes controversy and discussion, this book will have fulfilled a useful purpose.

Computer-supported collaborative learning is still very new. Researchers and practitioners alike still have much to learn. For all of us in this field, it is an exciting time.

Reference

Roberts, T.S. (2003). *Online collaborative learning: Theory and practice*. Hershey, PA: Information Science Publishing.