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# Online collaborative learning: Theory and practice

## Roberts, T. S. (Ed.). (2004).Hershey, PA: Information Science Publishing. (ISBN 1-59140-174-7)

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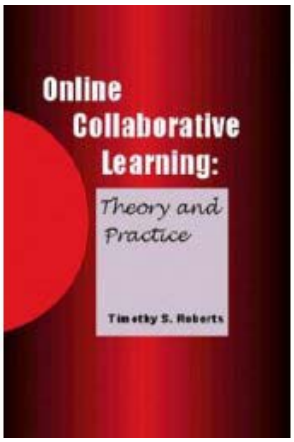
## INTRODUCTION

**This book is a collection of articles related to computer-mediated collaborative learning environments. It is edited by Tim S. Roberts from the Central Queensland University, Australia. The publisher is InfoSci, an imprint of Idea Group located both in the United States (Pennsylvania) and the United Kingdom (London). The book covers 13 chapters; each chapter is based on an article. In addition, there are separate sections for the Preface, the Authors, and the Index. The total number of pages is 321+xiv.**




**The authors of the chapters are selected academicians from various universities in Australia, Finland, United States, Germany, Canada, Denmark, and United Kingdom. They represent diverse areas of interests such as education, informatics, communication, psychology, mathematics, science, computing, technology, and management.**

## CHAPTERS

### Chapter 1

**Chapter one considers computer-mediated collaborative learning, within the context of a technology-supported project-based subject offered to advanced-level graduate students in education. The chapter discusses conceptual literature of collaboration in the online environment and summarizes a relevant qualitative study. The key findings of the study are the following: Open communication is critical to team success; various online tools and strategies are needed to support teamwork; there are certain challenges to good communication in using computer-based tools; teams need to adapt their communication patterns throughout their project; online tools are used for organizing and managing data as well as interaction with the whole class and the instructor.**

### Chapter 2

**Chapter two is about computer-mediated progressive inquiry in higher education. The chapter starts by presenting two episodes that represent collaborative experiences in a typical Finnish university environment. The first episode is about a traditional lecture-oriented setting in which students show no or little interest to the subject, while the second tells about a project-based experience in which students are highly engaged and motivated. After analyzing these two cases, the chapter presents a model of progressive inquiry; embedding the elements of creating the context, setting up research questions, constructing working theories, critical evaluation, deepening knowledge, generating subordinate questions, developing new working theories, and distributed expertise.**

### Chapter 3

**Chapter three dealt with moderating learner-centered e-learning with possible problems, solutions, benefits, and implications. More specifically, it explains how the simultaneous emergence of collaborative technologies and the learner-centered movement affects the role of the online instructor. It suggests that online instructors need to facilitate student generation and sharing of information. he chapter indicates that the key benefits of e-learning include the permanence of the online text, the availability of online mentors, and the fostering of student idea generation. Major problems, on the other hand, include learner confusion, lack of justification of student reasoning, and difficulties in grading online content. Finally, the chapter provides instructors with guidelines on how to take advantage of the benefits while overcoming the problems.**

**Chapter 4**

**Chapter four discusses possibilities and shortcomings of Internet usage for distributed problem-based learning. The key problems with the use of computer-mediated communication for online collaborative learning are identified. The authors of the chapter describe their approaches to problem-based learning, using data that is automatically tracked during computer-mediated communication and extract relevant information for feedback purposes. The chapter also summarizes two experiments emphasizing the point that feedback is a rich motivating resource for learners to manage their own collaboration process as well as subsequent problem-solving activity.**

**Chapter 5**

**Chapter five argues why computer-supported collaborative learning environments have been unsuccessful in facilitating knowledge building in mathematics. It identifies two of the major reasons why this is so and suggests that these issues could be overcome by the inclusion of model-eliciting mathematical problems and comprehension modeling tools within computer-supported collaborative learning environments.**

**Theoretical frameworks to inform the design of these two types of artifacts are presented. The chapter also summarizes two studies conducted by the authors with an innovative understanding of mathematics teaching. Finally, future trends are discussed in relation to the principles of collective meaning, model construction, negotiated evaluation, model documentation, simple prototype, and model generalization.**

**Chapter 6**

**Chapter six dealt with learning to learn in online groups. The chapter explores the nature of student ambivalence about online collaborative learning. Weaving the findings of case studies of online groups with research and theory in collaborative learning and group dynamics, the chapter argues that students hold on to highly subjective and individualistic understandings of teaching and learning. According to the authors, these perspectives manifest themselves in their overall approach to group inquiry and decision making. Thus, to embrace a more interdependent and intersubjectively perspective requires a paradigm shift among members with regard to the nature of teaching and learning. The chapter concludes with suggestions for designing and facilitating online environments that address these important issues.**

**Chapter 7**

**Chapter seven reviews the literature of online collaborative learning for contributions to evaluation. This review presents a new taxonomy for evaluation studies of online collaborative learning; identifying studies of students' experiences, studies of instructional methods and socio-cultural studies. Studies that focus on evaluating students' experiences engage approaches from phenomenology and ethnography to explore students' perceptions of collaborative learning. Instructional method studies attend to evaluation of the tools, techniques and outcomes. Socio-cultural studies (with three clusters of pedagogical, linguistic, cross-cultural studies) emphasize the socially constructed nature of the teaching and learning processes and are concerned, therefore, with evaluation in its social context. The chapter puts high emphasis on communicative**

**model of collaborative learning for its contribution to evaluating what takes place within the social context of students' communicative practices in an online environment.**

**Chapter 8**

**Chapter eight discusses benefits and challenges to using group work in online learning environments. It defines computer-mediated learning groups and outlines critical differences between learning groups and work groups. Various types of group work are compared based upon the levels of interdependence in learning environments. he chapter assumes that computer-mediated group work is an instructional strategy that combines online technologies with human interaction. The chapter further provides cases and research studies related to creating the groups, structuring group activities, and facilitating group interactions.**

**Chapter 9**

**Chapter nine elaborates on the concepts of "collaborative" and "cooperative" learning. Assuming that the existing literature conflates these two terms, the chapter attempts to distinguish them so that they can be used appropriately and unambiguously. The chapter also describes the advantages and shortcomings of each approach. Finally, the authors conclude with some remarks as to the application of such methods in an online environment.**

**Chapter 10**

**Chapter ten is about the methods for analyzing collaboration in online communications. It discusses the problems of defining collaboration in online discussions and measuring the extent to which true collaboration occurs. Drawing on a variety of previous studies, the authors present ways of dealing with both the computer-generated data and the discussions themselves to determine whether a discussion meets three basic criteria for collaboration. These criteria include equal participation, genuine interaction among the participants, and the synthesis of work into a unified whole. The chapter also develops coding procedures for content analysis that can be used to analyze and compare different discussions. It ends with a discussion of using these procedures in research on online collaboration to find out the factors that affect collaboration in small online groups.**

**Chapter 11**

**Chapter eleven deals with reflection and intellectual amplification in online communities of collaborative learning. I introduce an alternative theoretical framework for analyzing and designing computer-supported collaborative learning environments. Bateson's theory is used as a starting point for considering in what sense the specific dialogical conditions and qualities of virtual environments may support learning. This approach suggests that new instructional methods, addressing the learner's communicative awareness at a meta-level, need to be developed to fully utilize the interactive and reflective potential of online collaborative learning. The chapter highlights the elasticity of time and context, compensational behavior, the continuing dialogue, and the independence of time and space as the four main characteristics of online dialogues.**

**Chapter 12**

**Chapter twelve argues if online collaborative groups need leaders. It explores the value and strategies of online group leadership through a review of published research literature. It examines the philosophies that underpin online group work, the tasks that learners engage in and the skills of online instructors and students. Leadership styles, social roles, relationships, norms, and the effects of tools as well as media are considered. The chapter concludes with a summary of findings concerning the leadership value of online instructors and students, which is intended to further the understanding and professional development of all online educators.**

**Chapter 13**

**Chapter thirteen presents two complementary views as theoretical frameworks for the evaluation of computer-supported collaborative learning environments. It examines how**

**"scenario-based design" and "program theory" contribute to the development and evaluation of computer-supported collaborative learning and presents a case study in which both approaches are applied. Based on the revealed complementary frameworks, a compelling approach is drafted that combines both of them.**

## CONCLUSION

**This book provides both theoretical and practical information for those working in the field of online collaborative learning, also known as computer-supported collaborative learning. It is particularly useful for researchers, designers, managers, practitioners, and evaluators within formal as well as informal online educational settings. The diverse backgrounds of the authors enrich the content of the book and increase its usability.**

**The book emphasizes the importance of productive dialogue in computer-mediated collaborative learning and discusses how to use relevant computer-based tools for good communication. As an important aspect of collaborative learning experience, the book elaborates on the role of online instructors as facilitators of the learning process. It highlights the concepts of problem-based learning, progressive inquiry, student motivation, collaborative skills, feedback, instructional leadership, analysis of learner interaction, evaluation of both processes and products of collaboration, and intellectual amplification in online environments. The book attempts to answer such questions as: What are the differences between cooperative and collaborative learning? How can groups with shared goals work collaboratively through current technologies? What kind of benefits and problems emerge when people work together in online environments? How can educators and students use online tools for effective collaboration? Does online group work differ from traditional face-to-face group work, if so in what ways? Are there different requirements for the design of online collaborative learning than collaboration in the classroom? What kinds of discourse analysis techniques and evaluation models can be used in computer-supported collaborative learning environments? It is certainly worth to read this book thoroughly to produce answers to these questions**.