

SPRINGER CSCL SERIES
PRELIMINARY BOOK INFORMATION QUESTIONNAIRE
Proposal @ September 2007

Studying Virtual Math Teams
Edited by Gerry Stahl

1.

Gerry Stahl	College of Information Science & Technology Drexel University Philadelphia, PA 19104	215-895-0544 (office) 215-895-2494 (fax) gerry.stahl@drexel.edu www.cis.drexel.edu/faculty/gerry
--------------------	-----------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------

Gerry Stahl teaches, publishes and conducts research in human-computer interaction (HCI) and computer-supported collaborative learning (CSCL). His recent book, *Group Cognition: Computer Support for Building Collaborative Knowledge* was published by MIT Press. He is founding Executive Editor of the *International Journal of Computer-Supported Collaborative Learning* (ijCSCL), published by Springer. He has contributed chapters to two edited volumes of the Springer CSCL series. He is the Principal Investigator of the *Virtual Math Teams Project*, a large 5-year research effort in collaboration with the Math Forum @ Drexel. He served as Program Chair for the international CSCL '02 conference, Workshops Chair for CSCL '03, CSCL '05, CSCL'07 and CSCL'09. He teaches undergraduate, masters and PhD courses in HCI, CSCW and CSCL at the I-School of Drexel University in Philadelphia. See CV for more details, at: <http://www.cis.drexel.edu/faculty/gerry/resume.html>.

2. *Title:*

Studying Virtual Math Teams

3. *Description:*

Studying Virtual Math Teams will document the progress made by the Virtual Math Teams (VMT) project to carry out the research agenda proposed in *Group Cognition*. The book will thereby present the VMT project as a successful model of research in its field and provide an essential confirmation and elaboration of the perspective proposed in *Group Cognition*.

The VMT project, which was introduced toward the end of *Group Cognition*, has dual goals: (a) to provide a source of experience and data for practical and theoretical explorations of group cognition, and (b) to develop an effective online environment and educational service for collaborative learning of mathematics. The book, *Studying Virtual Math Teams*, will reflect these twin orientations, reviewing the intertwined aims and development of the research and the service. Other sections of the book will abstract from the lessons of the VMT project specifically to discuss more general implications for the analysis and theory of CSCL pedagogy, technology and methodology.

Studying will bring together about 20 studies of the VMT research project by members of the research team at Drexel University and collaborators at other institutions, nationally (Hawaii, Rutgers, CMU) and internationally (Germany, Brazil,

Romania, Spain, Netherlands, Canada, Singapore). Most of these contributions are based on presentations at a workshop on VMT during the CSCL 2007 conference. The papers were each critiqued prior to the workshop through hour-long chats by team members using the VMT environment. Revised versions prepared for this volume will be subjected to another online collaborative critique prior to incorporation in the edited manuscript.

The core chapters of *Studying* exist in preliminary manuscripts. Most have previously been presented in conferences, where they received feedback. Many of these drafts are available by clicking on the [[download](#)] links below. Each chapter will undergo a major revision in order to fit into its context within the edited volume.

The editor will introduce each chapter briefly in order to locate its significance. He will also provide a commentary for each chapter to draw out the consequences of the chapter for a systematic theory of group cognition. The edited book will include chapters on theory, methodology and technology design. A majority of the chapters will center on analysis of specific phenomena of group cognition as illustrated in detailed exegesis of VMT data. All chapters will be thoroughly edited to avoid redundancies and to ensure a consistent style and logical flow to the volume. An Introduction section to the collection will explain the VMT project and a Conclusion section will tie the contributions together and outline open issues for future work. (See Table of Contents below.)

4. Audience:

The central market is the readers of the CSCL book series. Readers of the author's previous book, *Group Cognition*, should also be very interested. More generally, students and researchers in the learning sciences, cognitive sciences and information sciences—including education and psychology—should provide a significant target audience.

5. Table of Contents:

“Studying Virtual Math Teams”

Contributors

Table of Contents

Table of Figures

Table of Tables

Introduction to Studying VMT

- The VMT vision and service
- Group cognition theory
- The VMT project and data
- Methodologies for studying VMT

Researching Interaction in VMT

- The organization of collaborative math problem-solving activities across dual interaction spaces (Murat Perit Cakir) [[download](#)]
- Bridging: Interactional mechanisms used by online groups to sustain knowledge building over time (Johann W. Sarmiento) [[download](#)]
- Resolving differences in perspective: Twists and turns in synchronous online collaborative mathematics problem-solving (Ramon Prudencio S. Toledo) [[download](#)]
- Information as a social achievement: Collaborative information behavior in VMT (Nan Zhou) [[download](#)]

Designing the VMT Service

- Creativity, collaboration and competence: Agency in online chat (Elizabeth S. Charles & Wesley Shumar) [[download](#)]
- Group creativity in Virtual Math Teams: Interactional mechanisms for referencing, remembering and bridging (Johann W. Sarmiento & Gerry Stahl)
- Understanding students' mathematical ideas and reasoning in chat (Arthur B. Powell & Frank Lai) [[download](#)]
- Cooperation and collaboration in online interaction (Henry Rodriguez & Murat Cakir)
- Evaluating the effect of social conversation on learning, interaction, and perceived interdependence in VMT (Carolyn P. Rosé) [[download](#)]
- The integration of synchronous communication across dual interaction spaces (Martin Mühlpfordt & Gerry Stahl) [[download](#)]
- Adoption of VMT by Math Forum users (Ilene Litz)

Analyzing Online Interaction

- Polyphonic inter-animation of voices in chats (Stefan Trausan-Matu) [[download](#)]
- Studying response-structure confusion in online chat interaction (Hugo Fuks)
- A model for analyzing collaborative knowledge construction in chat (Juan Dee Wee & Chee-Kit Looi) [[download](#)]
- A framework for analyzing interactional processes in online learning (Daniel Suthers) [[download](#)]
- Meaning making in CSCL: Conditions and preconditions for cognitive processes by groups (Gerry Stahl) [[download](#)]
- What's in the mix? Combining coding and conversation analysis to investigate chat-based problem solving (Alan Zemel, Fatos Xhafa, Murat Cakir)
- Methodological issues in developing a multi-dimensional coding procedure for small-group chat communication (Jan-Willem Strijbos) [[download](#)]

Theorizing Interaction in Chat

- Complicating common sense: The theory, practice and politics of critical ethnography in CSCL (Terry Epperson) [[download](#)]
- The disembodied act: Co-presence and indexical symmetry in computer-mediated communication (Alan Zemel) [[download](#)]
- Reading's work: The mechanisms of text chat in online interaction (Alan Zemel)
- Understanding as participation: An interactional perspective on cognitive states, assessment and learning (Alan Zemel)

Conclusions from Studying VMT

- Co-constructing a shared environment
- The dialectics of social networking and learning
- Making sense together
- Interaction in a new world

Endnotes

Index of Authors

Index of Subjects

References

Series List

6. Edited volume.

7. NA

8. NA

9. The authors have permission to republish their writings in this format.

10. Approximate length: 300-350 pages.

11. Approximately 30 tables and 30 screen images will be included.

12. No color plates are required.

13. See table of contents above. All references will be collected at the end.

14. The manuscript will be submitted within a year of signing the contract.

15. The editor will prepare a formatted manuscript.

16. *Competition:*

The proposed book will complement the existing CSCL book series. It will be different from previous volumes in that it will all be related to a single research project, although the authors will include researchers from international sites.

17. *Uniqueness:*

The literature of CSCL is scattered and fragmentary. The edited volumes of the CSCL book series and the issues of the *International Journal of CSCL* have helped to make this literature more accessible and better organized, but there are still few publications that bring together an extended research agenda or that provide a more comprehensive theory. The proposed book would complement well the author's *Group Cognition* and the offerings in the CSCL series, as well as preparing for the editor's proposed new monograph.

18. *Classroom usage:*

The proposed book will be written for advanced undergraduates and graduate students. It will be suitable for usage in courses on HCI, CSCL, CSCW, Education, Psychology, and the Learning Sciences generally.

19. *Past publication:*

Group Cognition was published in March 2006 by MIT Press in its series on Acting with Technology. The author met all deadlines for manuscript preparation, reading edits, reading proofs, preparing indices, etc. That book was approximately twice as long as the proposed book. The author contributed chapters to the Springer CSCL series books on *What We Know about CSCL* and *Scripting in CSCL*. He has published about a hundred fifty academic papers and chapters.

20. *Suggested reviewers:*

Jerry Andriessen

J.Andriessen@fss.uu.nl

Cindy Hmelo-Silver

chmelo@rci.rutgers.edu

Timothy Koschmann

tkoschmann@siumed.edu

Sten Ludvigsen	sten.ludvigsen@intermedia.uio.no
Roger Säljö	roger.saljo@ped.gu.se
Daniel Suthers	suthers@hawaii.edu
Barbara Wasson	barbara.wasson@intermedia.uib.no
Rupert Wegerif	r.b.wegerif@exeter.ac.uk

21. *Sample chapters:*

- “The organization of collaborative math problem-solving activities across dual interaction spaces” by Murat Perit Cakir [[download](#)]
- “Bridging: Interactional mechanisms used by online groups to sustain knowledge building over time” by Johann W. Sarmiento [[download](#)]
- “Resolving differences in perspective: Twists and turns in synchronous online collaborative mathematics problem-solving” by Ramon Prudencio S. Toledo [[download](#)]
- “Information as a social achievement: Collaborative information behavior in VMT” by Nan Zhou [[download](#)]