E-Collaboration: Concepts, Methodologies, Tools, and Applications

Ned Kock
Texas A&M International University, USA

Volume I



Contents

Volume I

Section I. Fundamental Concepts and Theories

This section serves as the foundation for this exhaustive reference tool by addressing crucial theories essential to the understanding of e-collaboration. Chapters found within these pages provide an excellent framework in which to position e-collaboration within the field of information science and technology. Individual contributions provide overviews of computer-mediated collaboration, communities of practice, and group decision support systems, while also exploring critical stumbling blocks of this field. Within this introductory section, the reader can learn and choose from a compendium of expert research on the elemental theories underscoring the research and application of e-collaboration.

Chapter 1.1. A Basic Definition of E-Collaboration and its Underlying Concepts	1
Chapter 1.2. e-Collaboration Concepts, Systems, and Applications	8
Christos Bouras, Research Academic Computer Technology Institute and University of	
Patras, Greece , >	
Eri Giannaka, Research Academic Computer Technology Institute and University of Patras. Greece	
Thrasyvoulos Tsiatsos, Aristoleian University of Thessaloniki and Research Academic Computer Technology Institute, Greece	
Chapter 1.3. Prerequisites for the Implementation of E-Collaboration	17
Thorsten Blecker; Hamburg University of Technology (TUTIH), Germany	
Ursula Liebhart, Alpen-Adria-University of Klagenfurt, Austria	
Chapter 1.4. Computer Mediated Collaboration.	.27
Barrie Io Price The University of Alabama USA	

Chapter 1.5. Computer-Mediated Knowledge Sharing	46
Chapter 1.6. A Classification of Communities of Practice	67
Chapter 1.7. Sociotechnical Theory and Communities of Practice	78
Chapter 1.8. Group Decision Support Systems. John Wang, Montclair State University, USA James Yao, Montclair State University, USA	82
Chapter 1.9. A Generic Definition of Collaborative Working Environments	90
Chapter 1.10. Computer-Supported Collaborative Work and Learning: A Meta-Analytic Examination of Key Moderators in Experimental GSS Research	.98
Chapter 1.11. Collaborative vs. Cooperative Learning: The Instructor's Role in Computer Supported Collaborative Learning	129
Chapter 1.12. Government Funding of E-Collaboration Research in the European Union: A Comparison with the United States Model	142
Chapter 1.13. Knowledge Transfer: Revisiting Video	151

Section II. Development and Design Methodologies

This section provides in-depth coverage of conceptual architectures, frameworks and methodologies related to the design and implementation of e-collaboration systems, tools, and technologies. Throughout these contributions, research fundamentals in the discipline are presented and discussed. From broad examinations to specific discussions on particular frameworks and infrastructures, the research found within this section spans the discipline while also offering detailed, specific discussions. Basic designs, as well as abstract developments, are explained within these chapters, and frameworks for designing successful virtual environments, information systems, and knowledge sharing communities are presented.

Chapter 2.1. A Use-Centered Strategy for Designing E-Collaboration Systems Daniel H. Schwartz, Air Force Research Laboratory, USA John M. Flach, Wright State University, USA W. Todd Nelson, Air Force Research Laboratory, USA Charlene K. Stokes, Air Force Research Laboratory, USA	165
Chapter 2.2. Design Patterns for Facilitation in E-Collaboration.	I 74
Gwendolyn L. Kolfschoten, Delft University of Technology, The Netherlands	
Robert O. Briggs, University of Nebraska at Omaha, University of Alaska at Fairbanks, Gert-Jan de Vreede, University of Nebraska at Omaha, USA and Delft University of Technology, The Netherlands	USA
Chapter 2.3. E-Collaboration: A Dynamic Enterprise Model	182
Eric Torkia, Technology Parlnerz, Ltd., Canada	
Luc Cassivi, University of Quebec — Montreal, Canada	
Chapter 2.4. A Social Informatics Framework for Sustaining Virtual Communities of Practice Umar Ruhi, Wilfrid Laurier University, Canada	193
Chapter 2.5. Customizing Multimedia and Collaborative Virtual Environments	202
Ildeberto A. Rodello, Centro Universitario Euripides de Mar ilia, Brazil	
Laura M. Rodriguez Peralla, University of Madeira, Portugal	
Paulo Alexandre Bressan, Universidade Presbileriana Mackenzie, Brazil	
Chapter 2.6. Concurrency Control in Real-Time E-Collaboration Systems. Wenbing Zhao, Cleveland State University, USA	211
Chapter 2.7. Web-Based Collaboration and Decision Making Support: A Multi-Disciplinary Approach	219
Nikos Karacapilidis, University of Patras, Greece	
Manolis Tzagarakis, University of Patras, Greece	

Chapter 2.8. A Case Study of Web-Based Collaborative Decision Support at NASA
Chapter 2.9. An Ontological Approach to Managing Project Memories in Organizations
Chapter 2.10. Designing Interactive and Collaborative E-Learning Environments
Chapter 2.11. Refraining Information System Design as Learning Across Communities of Practice
Kevin Gallagher, Northern Kentucky University, USA Robert M. Mason, University of Washington, USA
Chapter 2.12. Developing REALSpace: Discourse on a Student-Centered Creative Knowledge Environment for Virtual Communities of Learning
Chapter 2.13. Resurrecting Graduate Conversation through an Online Learning Community341 Brian Thorns, Claremont Graduate University USA Nathan Garrett, Claremont Graduate University, USA Mariana Soffer, Claremont Graduate University, USA Terry Ryan, Claremont Graduate University USA
Section III. Tools and Technologies
This section presents extensive coverage of the technology that both derives from and informs e-collaboration. These chapters provide an in-depth analysis of the use and development of innumerable devices and tools, while also providing insight into new and upcoming technologies, theories, and instruments that will soon be commonplace. Within these rigorously researched chapters, readers are presented with examples of the tools that facilitate and support e-collaboration. In addition, the successful implementation and resulting impact of these various tools and technologies are discussed within this collection of chapters.
Chapter 3.1. Collaborative Technologies, Applications, and Uses
Chapter 3.2. Characterization and Classification of Collaborative Tools

Chapter 3.3. A Macro-Level Approach to Understanding Use of E-Collaboration Technologies 371 Sanjiv D. Vaidya, Indian Institute of Management Calcutta, India Priya Seetharaman, Indian Institute of Management Calcutta, India
Chapter 3.4. Technological Challenges to the Research and Development of Collaborative Working Environments
Karl A. Hribernik, Bremen Institute of Industrial Technology and Applied Work Science (BIBA), Germany
Klaus-Dieter Thoben, Bremen Institute of Industrial Technology and Applied Work Science (BIBA), Germany
Michael Nilsson, Lulea University of Technology, Sweden
Chapter 3.5. Using Collaborative Technology in Group Facilitation
Chapter 3.6. Emergent Networks in Computer-Supported Groups
Chapter 3.7. Adopting Tools for Online Synchronous Communication: Issues and Strategies 413 Elizabeth Murphy, Memorial University of Newfoundland, Canada Therese Laferriere, Laval University, Canada
Chapter 3.8. Utilizing Web Tools for Computer-Mediated Communication to Enhance Team-Based Learning 425
Elizabeth Avery Gomez, New Jersey Institute of Technology, USA Dezhi Wit, Southern Utah University, USA
Katia Passerini, New Jersey Institute of Technology, USA Michael Bieber, New Jersey Institute of Technology, USA
Chapter 3.9. Decision Support Software 440
John Wang, Montclair State University, USA
Huanyu Ouyang, People s Hospital of Jangxi Province, China Chandana Chab'aborty, Montclair Stale University, USA
Chapter 3.10. Blogging Technology and its Support for E-Collaboration. 448 Vanessa Paz Dennen, Florida State University, USA Talyana G. Pashnyak, Florida State University, USA
Chapter 3.11. Academic Weblogs as Tools for E-Collaboration Among Researchers
Chapter 3.12. Collaborative E-Learning Using Semantic Course Blog

Chapter 3.13. Blogs as a Social Networking Tool to Build Community
Lisa Kervin, University of Wollongong, Australia
Jessica Mantel, University of Wollongong, Australia
Anthony Herrington, University of Wollongong, Australia
Chapter 3.14. The Use of the CMC Tool AMANDA for the Teaching of English
Patrica Lupion Torres, Pontificia Universidade Catolica do Parana (PUCPR), Brazil
Chapter 3.15. Using Virtual Worlds to Assist Distributed Teams
Clint Bowers, University of Central Florida, USA
Peter A. Smith, University of Central Florida, USA
Jan Cannon-Bowers, University of Central Florida, USA
Denise Nicholson, University of Central Florida, USA
Chapter 3.16. Videoconferencing as an E-Collaboration Tool
Michael Chilton, Kansas State University, USA
Roger McHaney Kansas State University, USA
Chapter 3.17. Instant Messaging as an E-Collaboration Tool
Qinyu Liao, University of Texas at Brownsville and Texas Southmost College, USA
Xin Lno, Virginia State University, USA
Chapter 3.18. Group Support Systems as Tools for HR Decision Making
James Yao, Montclair State University, USA
John Wang, Montclair State University, USA
Joint Wang, Mondain State Oniversity, Obit
Chapter 3.19. Collaboration Intricacies of Web 2.0 for Training Human Resource Managers 546
Jacqueline A. Gilbert, Middle Tennessee State University, USA
Volume II
Chapter 3.20. Issues, Limitations, and Opportunities in Cross-Cultural Research on Collaborative
Software in Information Systems 553
Dongsong Zhang, University of Maryland, Baltimore County USA
Paul Benjamin Lowry, Brigham Young University, USA
Chapter 3.21. Human Communication in Collaborative Augmented Reality Systems
Kiyoshi Kiyokawa, Osaka University, Japan

Chapter 3.22. Facilitating E-Learning with Social Software: Attitudes and Usage from the Student's Point of View
Reinhard Bernsleiner, University for Health Sciences, Medical Informatics and Technology, Austria
Herwig Ostermann, University for Health Sciences, Medical Informatics and Technology, Austria
Roland Staudinger, University for Health Sciences, Medical Informatics and Technology, Austria
Chapter 3.23. "Neomillennial" Learning Styles Propagated by Wireless Handheld Devices
Section IV. Utilization and Application
This section introduces and discusses the ways in which e-collaboration systems, tools, and technologies have been utilized and also propose new ways in which e-collaboration innovations can be implemented within organizations and in society as a whole. These particular selections highlight, among other topics, utilizing e-collaboration for knowledge management, e-collaboration for social health outcomes, and decision support for crisis management. Contributions included in this section provide excellent coverage of today's electronic environment and insight into how e-collaboration impacts the fabric of our present-day global village.
Chapter 4.1. Levels of Adoption in Organizational Implementation of E-Collaboration Technologies
Chapter 4.2. The Role of E-Collaboration Systems in Knowledge Management. 660 Sharon A. Cox, Birmingham City University, UK John S. Perkins, Newman College of Higher Education, UK
Chapter 4.3. E-Collaboration-Based Knowledge Refinement as a Key Success Factor for Knowledge Repository Systems
Chapter 4.4. E-Research Collaboration, Conflict and Compromise
Chapter 4.5. E-Collaboration as a Tool in the Investigation of Occupational Fraud

Chapter 4.6. The Support of E-Collaboration Technologies foi'a Blood Bank)1
Chapter 4.7. Electronic Collaboration Toward Social Health Outcomes)6
Sayeed Ahmed, Manipal University, Melaka Manipal Medical College, Malaysia Chapter 4.8. Web-Based Group Decision Support for Crisis Management	21
Chapter 4.9. A Reference Model for E-Collaboration within the Dispersed Sales Force Training Process in Multinational Companies	35
Chapter 4.10. Evolving Information Ecologies: The Appropriation of New Media in Organizations	51
Chapter 4.11. E-Collaboration for Internationalizing U.S. Higher Education Institutions	70
Chapter 4.12. Experiences in Collaboration in Distance Education from the Caribbean: Looking Beyond Electronic	78
Chapter 4.13. Computer-Supported Collaborative Learning: The Role of the Instuctor	98
Chapter 4.14. Contributions of Psychopedagogy to the Inclusion of ICT in the Pedagogical Environment 8 Maria Apparecida Mamede-Neves, Catholic University of Rio de Janeiro, Brazil	312

Chapter 4.15. Governing E-Collaboration in E-Lance Networks
Molly Wasko, Florida State University, USA James Worrell, Florida State University, USA Tom Yoon, Florida State University, USA
Chapter 4.16. Using Social Networking Analysis to Facilitate Knowledge Sharing in the British Council 833
Bonnie Wai-yi Cheuk, Improvement Service for the Scottish Local Government, Scotland
Chapter 4.17. A Trination Analysis of Social Exchange Relationships in E-Dating 842 Sudhir H. Kale, Bond University, Australia Mark T. Spence, Bond University, Australia
Section V. Organizational and Social Implications
This section includes a wide range of research pertaining to the social and organizational impact of e-collaboration around the world. Chapters introducing this section analyze digital disempowermenl, while later contributions offer an extensive analysis of the educational implications of e-collaboration implementation. The inquiries and methods presented in this section offer insight into the implications of e-collaboration at both a personal and organizational level, while also emphasizing potential areas of study within the discipline.
Chapter 5.1. Digital Disempowerment in a Network Society
Chapter 5.2. Coordination, Learning, and Innovation: The Organizational Roles of E-Collaboration and Their Impacts
Chapter 5.3. How Groupware Systems Can Change How an Organisation Makes Decisions: A Case Study in the Publishing Industry
Chapter 5.4. Infrastructure Support for Smart Organizations: Integration of Web Service Partners in Heterogeneous Environments

Chapter 5.5. Governance Mechanisms for E-Collaboration
Chapter 5.6. Supporting Distributed Groups with Group Support Systems: A Study of the Effect of Group Leaders and Communication Modes on Group Performance
Chapter 5.7. A Tool for Assisting Group Decision-Making for Consensus Outcomes in Organizations.
Faezeh Afshar; University of Bailor at, Australia
John Yearwood, University of Ballarat, Australia Andrew Stranieri, University of Ballarat, Australia
Chapter 5.8. Leadership Challenges in Communities of Practice: Supporting Facilitators via Design and Technology
Halbana Tarmizi, University of Nebraska at Omaha, USA
Gert-Jan de Vreede, University of Nebraska at Omaha, USA
Ilze Zigurs, University of Nebraska at Omaha, USA
Chapter 5.9. Business Process Management Systems for Supporting Individual and Group Decision Making
Amit V. Deokar, Dakota State University, USA
Omar F. El-Gayar, Dakota State University, USA
Chapter 5.10. Managing E-Collaboration Risks in Business Process Outsourcing
Chapter 5.11. An Ontology Approach to Collaborative Engineering for Producibility
Chapter 5.12. Teaching, Learning, Negotiating: The World Wide Web as a Model for Successful Cross-Cultural Communication
Chapter 5.13. The Role of Culture in Knowledge Management: A Case Study of Two Global Firms
Dorothy Leidner, Baylor University, USA
Maryam Alavi, Emory University, USA
Timothy Kayworth, Baylor University, USA
Chapter 5.1.4. Listserv Implementation and Sense of Community: The Relationships with Increased Knowledge and Face-to-Face Interaction
Anita Blanchard, University of North Carolina, Charlotte, USA

Chapter 5.15. A Study of Friendship Networks and Blogosphere	1078
Chapter 5.16. Impact of Chinese Culture Values on Knowledge Sharing through Online Communities of Practice.	.i 101
Wei Li, University of Illinois at Urbana-Champaign, USA Alexandre Ardichvili, University of St. Thomas, USA Martin Maurer, University of Illinois at Urbana-Champaign, USA Tim Wentling, University of Illinois at Urbana-Champaign, USA Reed Stuedemann, Caterpillar University, USA	
·	
Chapter 5.17. Using Computer Mediated Communication as a Tool to Facilitate Intercultural Collaboration of Global Virtual Teams. Norhayati Zakaria, Universiti Utara Malaysia, Malaysia	.1115
Chapter 5.18. Adaptations that Virtual Teams Make so that Complex Tasks can be Performed using Simple E-Collaboration Technologies. **Dorrie DeLuca, University of Delaware, USA Susan Gasson, Drexel University, USA Ned Kock, Texas A&MInternational University, USA	.1124
Volume III	
Chapter 5.19. Modelling Stages of Behaviour in Social Virtual Communities. Lynne D. Roberts, University of Western Australia, Australia Leigh M. Smith, Curtin University of Technology, Australia Clare M. Pollock, Curtin University of Technology, Australia	1147
Chapter 5.20. Inter-Organizational E-Collaboration in Education. Susanne Croasdaile, Virginia Commonwealth University, USA.	1157
Chapter 5.21. Computer-Mediated Communication that Brings Learning into the Present: Gender Differences in Status Differentials and Self-Disclosure in Online Peer Teaching Linda Seward, Middle Tennessee State University, USA Vickie Harvey, California State University, USA Joseph Carranza, California State University. USA	1171

Section VI. Managerial Impact

This section presents contemporary coverage of the managerial implications of e-collaboration. Particular contributions address instant messaging in the workplace, virtual teams, and intercultural communication. The managerial research provided in this section allows executives, practitioners, and researchers to gain a better sense of how e-collaboration can shape and inform their practices and behavior.

Chapter 6.1. An Adaptive Workforce as the Foundation for E-Collaboration	;
Chapter 6.2. Collaborative Development Environments	-
Chapter 6.3. Interaction and Context in Service-Oriented E-Collaboration Environments)
Chapter 6.4. Reconsidering IT Impact Assessment in E-Collaboration)
Chapter 6.5. A Research Agenda for Identity Work and E-Collaboration	3
Chapter 6.6. Instant Messaging (IM) Literacy in the Workplace	5
Chapter 6.7. Risk Management in Distributed IT Projects: Integrating Strategic, Tactical, and Operational Levels	3
Chapter 6.8. Managing Intercultural Communication Differences in E-Collaboration	8

Chapter 6.9. Determinants of Manufacturing Firms' Intent to Use Web-Based Systems
to Share Inventory Information with their Key Suppliers
Robert Pellerin, Ecole Polytechnique de Montreal, Canada
Chapter 6.10. The Impacts of Electronic Collaboration and Information Exploitation
Capability on Firm Performance: Focusing on Suppliers Using Buyer-Dominated
Interorganizational Information Systems. 1289
Ilsang Ko, Chonnam National University, Korea
Lome Olfman, Claremont Graduate University, USA
Sujeong Choi, Chonnam National University, Korea
Chapter 6.11. Patterns for Effective Management of Virtual Projects: Theory and Evidence
Ilze Zigurs, University of Nebraska at Omaha, USA
Chapter 6.12. A Paradox of Virtual Teams and Change: An Implementation of the Theory
of Competing Commitments
John McAvoy, University College Cork, Ireland
Tom Butler, University College Cork, Ireland
Chapter 6.13. Meta-Analysis Research on Virtual Team Performance
Ying-Chieh Liu, Chaoyang University of Technology, Taiwan
Janice Burn, Edith Cowan University, Australia
·
Susan Sloney Edith Cowan University, Australia
Chapter 6.14. Impression Formation in Computer-Mediated Communication
and Making a Good (Virtual) Impression
Jamie S. Switzer, Colorado State University, USA
Jamie S. Switzer, Colorado State University, USA
Chapter 6.15. Collaborative Writing Tools in the Virtual Workplace
Joei Wesi, Texus Tech Oniversity, Oshi
Section VII. Critical Issues
This section addresses conceptual and theoretical issues related to the field of e-collaboration, which include issues relating to both trust and security. Within these chapters, the reader is presented with analysis of the most current and relevant conceptual inquires within this growing field of study. Particular chapters also address melacommunication in computer-mediated communication, spam, and the factors promoting collaborative learning in web-based education. Overall, contributions within this section ask unique, often theoretical questions related to the study of e-collaboration and, more often than not, conclude that solutions are both numerous and contradictory.
Chapter 7.1. Interactional Modifications in Internet Chatting 1390 Neny Isharyanti, Satya Wacana Christian University, Indonesia

Chapter 7.2. What Factors Promote Sustained Online Discussions and Collaborative Learning in a Web-Based Course?	410
Xinchun Wang, California State University, Fresno, USA	+10
Chapter 7.3. The Functions of Negotiation of Meaning in Text-Based CMC	431
Chapter 7.4. Form and Function of Metacommunication in CMC	447
Chapter 7.5. Spam as a Symptom of Electronic Communication Technologies that Ignore Social Requirements	464
Chapter 7.6. Media and Familiarity Effects on Assessing Trustworthiness: "What Did They Mean By That?"	474
Chapter 7.7. Understanding Effective e-Collaboration through Virtual Distance	493
Chapter 7.8. Trans-Disciplinary Collaboration and Information Systems	501
Chapter 7.9. The Vineyard Approach: A Computational Model for Determination of Awareness Foci in Email-based Collaboration	510
Chapter 7.10. The Affective and Cognitive Impacts of Perceived Touch on Online Customers' Intention to Return in the Web-Based eCRM Environment	530
Chapter 7.11. Mission-Critical Group Decision-Making: Solving the Problem of Decision Preference Change in Group Decision-Making Using Markov Chain Model	.550

Chapter 7.12. Hacker Wars: E-Collaboration by Vandals and Warriors
Section VIII. Emerging Trends
This section highlights research potential within the field of e-collaboration while exploring uncharted areas of study for the advancement of the discipline. Chapters within this section highlight evolutions in online communities, nethnography and its role in online interaction, and new models and concepts for online education. These contributions, which conclude this exhaustive, multi-volume set, provide emerging trends and suggestions for future research within this rapidly expanding discipline.
Chapter 8.1. Reconfiguration of Communities in Cyberspace
Chapter 8.2. Engineering for Interdisciplinary Collaboration
Chapter 8.3. Nethnography: A Naturalistic Approach Towards Online Interaction
Chapter 8.4. Supporting CSCW and CSCL with Intelligent Social Grouping Services
Chapter 8.5. A Methodology and Framework for Extending Mobile Transformations to Mobile Collaborations for SMEs
Chapter 8.6. Developing Synergies between E-Collaboration and Participant Budgeting Research
Chapter 8.7. Bridging the Gap Between Web 2.0 and Higher Education
Chapter 8.8. Destructive Creativity on the Social Web: Learning through Wikis in Higher Education

Chapter 8.9. Collaborative Technology: Improving Team Cooperation and Awareness in	
Distance Learning for IT Education	1686
Levent Yilmaz, Auburn University, USA	
Chapter 8.10. Student Motivation in International Collaboration: To Participate or Not to	
Participate?	1699
Janice Whatley, University of Salford, UK	
Elena Zaitseva, Liverpool John Moores University, UK	
Danuta Zakrzewska, Technical University of Lodz, Poland	
Chapter 8.11. A New Model for Online Doctoral Course Development with Faculty Quality Assessment.	1719
Thomas M. Schmidt, University of Phoenix, USA	
Michael Shaw, SilkWeb Consulting and Development, USA	