Evaluation of Social-usability of Interface Design in Computer Mediated Communication Systems

Introduction

With the computer and internet being equipped in everyone's home, people have extended their use of computers from works conducted in a working related environment to activities and communications in people's daily life. Interface design becomes important for supporting not only the information flow between human and computers, but also the social communication among human being mediated by networks/digital devices (we called these as digital media). Because the new devices and online environment provides socialization opportunities and places for people develop and expand their social territories, people's experiences online or with digital devices are regarded as highly significant for individual's personal relationship development and community building.

Nowadays, there are various types of digital systems (including systems that use digital devices or web sites to enable communication) that support people's interpersonal communication. The design of the systems vary with the bandwidth of media channels, types of social cues being conveyed, and styles of interaction strategies supported for communication. As a result of these variations, the interpersonal communication through digital media has been found to be different from face to face communication in aspects such as self-presentation, impression formation, role awareness, cooperation, intimacy, deception, and relationship development. These differences and variations show that there are connections between the usability/design of an online system and the sociability that this system affords. The communication efficiency (to the extent that an individual could meet his communication goals as the person wishes to) is largely affected by how the system represents users' appearance and their message and how the system supports users' interaction. My research interests lay on this connection. I'm interested in studying how to evaluate social-usability of digital networking system in supporting interpersonal communication and exploring the way to measure how a certain UI design would affect aspects of a communication. The results of this research will inform us a better design for supporting efficient communication between internet users.

The research of computer-mediated interaction and communication is by nature an interdisciplinary endeavor, requiring knowledge from the areas of communication, social psychology, computer science, and cognitive science. Knowledge from these disciplines will contribute to my understanding of theories, method, design, and society and systems aspects of UI design for computer mediated interpersonal communication.

To best narrow the reading list for this general exam, I will use two computer mediated communication systems to guide the scope of the selection. These two types of systems are applications that mediate communication through a digital device, such as a mobile phone photo sharing system, and systems that mediate communication through an online environment, such as MySpace.

Theories

My readings about theories will be drawn from areas of interpersonal communication, computer-mediated communication, and social psychology.

There are abundant theories about how people interact with each other or within a group in the area of interpersonal communication. Since I'm most interested in how the digital system supports users' communication through the afforded interactions, I will draw readings about how people utilize nonverbal/contextual cues for their communication via computer systems. Among all the different types of nonverbal contextual information, I will focus on researches that study physical appearance, proxemics, chronemics, and artifacts. These types of contextual information generally could be available

through digital media. Readings on these areas will supply my understanding of how people use these contextual cues to create meaning and formulate their interactions.

Research in computer-mediated communication has been focused on how the communicative cues available in current on-line settings affect the ensuing interaction. Most of this research has been done from social psychological perspective. Findings reported differ in terms of the cues they consider and their conceptions of how people use those cues. Typical theories include social presence theory, media richness theory, social information processing theory, social identity/deindividuation theory, hyperpersonal communication theory, etc. I will draw readings from these areas to expand my understanding of theoretical aspects of digital mediated social interaction.

In addition to the social psychological theories of CMC mentioned above, there are some other social psychological theories that describe and explain how the actual, imagined, or implied presence of individuals would influence the thought, feeling, and behaviors of others. Theories that are related to people's digital social experience include social belonging theory, cognitive dissonance theory, social cognitive theory, uncertainty reduction theory, attribution theory, etc. Reading about these theories will help me understand how people perceive particular cues available through network systems and how people behave when lacking of certain information.

In general, questions that will be used to guide the reading collection are:
- what are the major non-verbal information people utilize in conducting interpersonal communication?
- how do people generally perceive the non-verbal information and how do they adjust their behavior accordingly?

<general theories, theories applied to domaim>

Theory Readings Candidates:

1. [Walther and Parks '02] Cues Filtered Out, Cues Filtered In: Computer-Mediated Communication and Relationships, *Handbook of Interpersonal Communication*
2. [Burgoon and Hoobler '02] Nonverbal Signals, *Handbook of Interpersonal Communication*
3. [Walther, Loh et al. '05] Let me count the ways: The Interchange of Verbal and Nonverbal Cues in Computer-Mediated and Face-to-Face Affinity, *Journal of Language and Social Psychology*
4. [Riva '02] The Sociocognitive Psychology of Computer-Mediated Communication: The Present and Future of Technology-Based Interactions, *CyberPsychology & Behavior*
5. [Nardi and Whittaker '02] The place of face to face communication in distributed work, *Distributed work: New research on working across distance using technology*
6. [Spears, Lea et al. '01] Social psychological theories of computer-mediated communication: Social gain or social pain? *The New Handbook of Language and Social Psychology*
7. [Whittaker '03] Theories and Methods in Mediated Communication, *Handbook of Discourse Processes*
8. [Tidwell and Walther '02] Computer-Mediated Communication Effects on Disclosure, Impressions, and Interpersonal Evaluations: Getting to Know One Another a Bit at a Time, *Human Communication Research*
9. [Baumeister and Leary '95] The need to belong: Desire for interpersonal attachments as a fundamental human motivation, *Psychological Bulletin*
10. [Gardner, Pickett et al. '00] Social exclusion and selective memory: How the need to belong influences memory for social events, *Personality and Social Psychology Bulletin*
11. [Pickett, Gardner et al. '04] Getting a cue: The need to belong and enhanced sensitivity to social cues, *Personality and Social Psychology Bulletin*
12. [Rudich and Vallacher '99] To belong or to self-enhance? Motivational bases for choosing interaction partners, *Personality and Social Psychology Bulletin*

13. [Williams, Cheung et al. '00] Cyberostracism: Effects of being ignored over the internet, *Journal of Personality and Social Psychology*
14. [Bradner and Mark '02] Why Distance Matters: Effects on Cooperation, Persuasion and Deception, *Proceedings of the ACM Conference on CSCW (CSCW'02)*
15. [Kling '91] Cooperation, Coordination and Control in Computer-Supported Work, *Communications of the ACM*
16. [Erickson, Smith et al. '99] Socially Translucent Systems: Social Proxies, Persistent Conversation, and the Design of 'Babble', *Proceedings of CHI '99*
17. [Dourish and Bellotti '92] Awareness and Coordination in Shared Workspaces, *Proceedings of the 1992 ACM Conference on Computer-Supported Cooperative Work (CSCW'92).*
18. [Gunawardena '95] Social Presence Theory and Implications for Interaction and Collaborative Learning in Computer Conferences, *International Journal of Educational Telecommunications*
19. [Kollock and Smith '96] Managing the Virtual Commons: Cooperation and Conflict in Computer Communities, *Computer-Mediated Communication: Linguistic, Social, and Cross-Cultural Perspectives*
20. [Schmidt '02] The problem with 'Awareness': Introductory Remarks on 'Awareness in CSCW', *Computer Supported Cooperative Work*
21. [Bos, Olson et al. '06] Collocation blindness in partially distributed groups: is there a downside to being collocated? *ACM CHI'06*
22. [Preece and Maloney-Krichmar '03] Online Communities, *Handbook of Human-Computer Interaction*
23. [Preece '00] Online Communities: Designing Usability, Supporting Sociability (Chapter 5: Research Speaks to Practice: Interpersonal Communication; Chapter 6: Research Speaks to Practice: Groups),

Methods

The readings about methods will be drawn from areas of computer-mediated communication, social psychology, and usability research.

There are various types of methods that can be used to study how people interact with others using a computer. The types of methods range from rigorous ethnographic, interpretive, and linguistic work, to observational and experimental studies. Typical methods include content analysis, ethnography, survey and interview, field study, manipulated lab experiments, user studies, etc. These methods are generally used to study different research populations and to pursue different research questions. I will draw readings that describe the general characteristics of methods that people use in studying interpersonal communication through network.

Since I'm interested in how the UI design features affect people social interact, I will draw readings about methods that enable me to study the visual design of nonverbal cues on users' use of social information. Therefore, readings in this area will be focused on large scale/low granularity approaches that enable me to study the general effect of visual elements on people's behaviors and small scale /high granularity approaches and enable me to study the effect of particular design on users' perception, memory, cognitive, motivation, or emotion. Large scale approaches could be survey or remote usability methods, and small scale approaches could be lab experiments, eye tracking, interview, or focus group. Readings will be mostly focusing on describing the methodological issues, such as research functions, applicability and availability of the method, measures obtained through the method, associated benefits or drawbacks, conducting guidelines, and/or comparisons with other similar approaches. Readings in this area will help me obtain a broad understanding of the commonly used research methods, which will help me determine the appropriate methods I will be using in my future study.

In general, questions that will be used to guide the reading collection are:
- what are benefits and drawbacks of all these different research methods for studying interpersonal communication?

- how do the methods of lab experiments, survey, and interview support the study of computer mediated communication problems?

<generic method reference, examples of methods applied to domain, examples of using method in domain>

Method - Reading Candidates:

General methods

24. [De Souza and Preece '04] A framework for analyzing and understanding online communities. Interacting with Computers, *The Interdisciplinary Journal of Human-Computer Interaction*
25. [Neale, Carroll et al. '04] Evaluating Computer-supported Cooperative Work: Models and Frameworks, *CSCW 2004*
26. [Orlikowski and Yates '02] Genre Systems: Structuring Interaction through Communicative Norms, *The Journal of Business Communication, January, 2002*
27. [Rowley '94] Usability Testing in the field: bringing the laboratory to the user, *Proc. CHI'94*
28. [Jacob and Karn '03] Eye Tracking in Human-Computer Interaction and Usability Research: Ready to Deliver the Promises (Section Commentary), *The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research*
29. [Burton and Walther '01] The value of Web log data in use-based design and testing, *Journal of Computer-Mediated Communication*
30. [Zar '99] Biostatistical Analysis,
31. [Stevens '02] Applied Multivariate Statistics for the Social Sciences,
32. [Kraut, Olson et al. '03] Psychological Research Online: Opportunities and Challenges, *APA-Online*
33. [Whittaker '03] Theories and Methods in Mediated Communication, *Handbook of Discourse Processes*
34. [Preece '00] Online Communities: Designing Usability, Supporting Sociability (Chapter 10: Assessing Needs and Evaluating Communities),
35. [Harris and Muirhead '04] Online Learning Community Research - Some Influences of Theory on Methods, *Networked Learning Conference 2004*

Methods used in the field to study a specific research question or a phenomena

36. [Rafaeli, Ravid et al. '04] De-Lurking in Virtual Communities: A Social Communication Network Approach to Measuring the Effects of Social and Cultural Capital, *Proceedings of the 37th Annual Hawaii International Conference on System Sciences (HICSS'04)*
37. [Carroll, Rosson et al. '05] Collective Efficacy as a Measure of Community, *CHI'05*
38. [Herring '04] Bridging the gap: A genre analysis of weblogs., *Proceedings 37th Annual HICSS Conference, 2004. Big Island, Hawaii*
39. [Erickson '97] Social interaction on the Net: Virtual community as participatory genre, *Thirtieth Hawaii International Conference on System Sciences, Maui, Hawaii.*
40. [Haynes, Purao et al. '04] Situating evaluation in scenarios of use, *CSCW 04*
41. [Jones, Gallois et al. '99] Strategies of Accommodation: Development of a Coding System for Conversational Interaction, *Journal of Language and Social Psychology*
42. [Walther, Loh et al. '05] Let me count the ways: The Interchange of Verbal and Nonverbal Cues in Computer-Mediated and Face-to-Face Affinity, *Journal of Language and Social Psychology*
43. [Kling '91] Cooperation, Coordination and Control in Computer-Supported Work, *Communications of the ACM*
44. [Hancock, Curry et al. '05] Automated Linguistic Analysis of Deceptive and Truthful Synchronous Computer-Mediated Communication, *HICSS '05.*
45. [Gergle, Kraut et al. '04] Language efficiency and visual technology: Minimizing collaborative effort with visual information, *Journal of Language and Social Psychology*

46. [Lee and Nass '02] Experimental Tests of Normative Group Influence and Representation Effects in Computer-Mediated Communication: When Interacting Via Computers Differs From Interacting With Computers, *Human Communication Research*
47. *Volume 28 Page - July 2002*
48. [Tidwell and Walther '02] Computer-Mediated Communication Effects on Disclosure, Impressions, and Interpersonal Evaluations: Getting to Know One Another a Bit at a Time, *Human Communication Research*
49. [Bradner, Kellogg et al. '99] The adoption and use of "BABBLE": a field study of chat in the workplace, *Proceedings of the Sixth European conference on Computer supported cooperative work*
50. [Kraut, Patterson et al. '98] Internet Paradox: A social Technology That Reduces Social Involvement and Psychological Well-Being? *American Psychologist*

Design

The readings about design will be drawn from the areas of human computer interaction (HCI). In HCI area, people have been working on designing computer systems to support interpersonal communication. For example, researchers have been tried to design interface to support interaction such as collaboration, information sharing, etc. and to improve social awareness, such as accountability, expression, and trust in digital social interactions.

Readings related to these areas will be focused on types of communication problems solved, assumptions about the original/designed system, design features, visual and media elements of the design, effect of design on interactions (effectiveness and efficiency), etc. These readings will help me gain a big picture of types of design features that are available, and whether they are efficient or inefficient for certain communication activities within certain context and with certain users. Knowledge about these aspects will help me develop taxonomy of existing designs of digital communication systems, which will support a development of a framework for evaluating the social-usability of network mediated interaction systems.

Besides studying the systems designed for interpersonal communication, further readings will be drawn from HCI domain to illustrate the design approaches that have been developed or used to design social systems for supporting users' communication needs. These readings will be focusing on how design approaches, such as user-centered design, contextual design, activity theory centered design, etc, were used to develop user interfaces and interactive systems and their associated design principles. These principles combining with design features revealed in the first part of the reading will provide insights on developing interactive systems to improve social information representation and supports social interaction.

In general, questions that will be used to guide the reading collection are:
- what are the current design spaces and features/patterns of CMC systems in supporting the mediated interpersonal communication?
- Is the design for computer mediated communication systems differ from the traditional design approaches? If yes, how?

Design - Reading Candidates:

General Design approaches and principles (adding more pattern languages here)

51. [Moran and Anderson '90] The workaday world as a paradigm for CSCW design, *Proceedings of the 1990 ACM Conference on Computer-Supported Cooperative Work (CSCW'90)*
52. [Kyng '91] Designing for Cooperation: Cooperating in Design, *Communications of the ACM*
53. [Norman '06] Logic versus usage: the case for activity-centered design, *interactions*
54. [Laurel '93] Chapter 5: Design Principles for Human-Computer Activity, *Computers as Theater*
55. [Mynatt, Adler et al. '97] Design for network communities, *ACM CHI'97*

56. [Kaptelinin, Nardi et al. '99] Methods & tools: The activity checklist: a tool for representing the "space" of context, *interactions*
57. [Martin, Rodden et al. '01] Finding patterns in the fieldwork, *Proceedings of the Seventh European Conference on Computer-Supported Cooperative Work (ECSCW'01)*
58. [Cooper and Reimann '03] Chapter 19 Designing Look and Feel; Chapter 20 Metaphors, Idioms, and Affordances; Chapter 38 Designing for Embedded Systems, *About Face 2.0: The Essentials of Interaction Design*
59. [Kuniavsky '03] Chapter 8 - Contextual inquiry, task analysis, and card sorting, *Observing the user experience: A Practitioner's guide to user research*
60. [Preece '00] Online Communities: Designing Usability, Supporting Sociability (Chapter 9: Guidelines: Sociability and Usability),

Interactive systems designed to support social interaction

61. [Grayson and Coventry '98] The Effects of Visual Proxemic Information in Video Mediated Communication, *ACM SIGCHI Bulletin*
62. [Vronay, Smith et al. '99] Alternative interfaces for chat, *12th annual ACM Symposium on User Interface Software and Technology*
63. [Erickson and Kellogg '00] Social translucence: An approach to designing systems that support social processes, *ACM Transactions on Computer-Human Interaction*
64. [Farnham, Kelly et al. '04] Wallop: Designing Social Software for Co-located Social Networks, *Proceedings of the 37th Hawaii International Conference on System Sciences*
65. [Cadiz, Venolia et al. '02] Designing and Deploying an Information Awareness Interface, *Proceedings of the 2002 ACM Conference on Computer-Supported Cooperative Work (CSCW'02)*
66. [Smith and Fiore '01] Visualization Components for Persistent Conversations, *Proceedings of CHI'01*
67. [Ling, Beenen et al. '05] Using social psychology to motivate contributions to online communities, *Journal of Computer-Mediated Communication*
68. [Rashid, Ling et al. '06] Motivating Participation by Displaying the Value of Contribution, *CHI'06*
69. [Dave, Wattenberg et al. '04] Flash Forums and ForumReader: Navigating a New Kind of Large-scale Online Discussion, *Proc. CSCW'04*
70. [Gergle, Kraut et al. '06] The impact of delayed visual feedback on collaborative performance, *CHI'06*
71. [Churchill, Trevor et al. '00] Anchored conversations: chatting in the context of a document, *Proceedings of the SIGCHI conference on Human factors in computing systems*
72. [Nardi and Whittaker '02] The place of face to face communication in distributed work, *Distributed work: New research on working across distance using technology*
73. [Fussell, Setlock et al. '04] Gestures Over Video Streams to Support Remote Collaboration on Physical Tasks, *Human-Computer Interaction*
74. [Gergle, Kraut et al. '04] Language efficiency and visual technology: Minimizing collaborative effort with visual information, *Journal of Language and Social Psychology*
75. [Walther '01] The Impacts of Emoticons on Message Interpretation in Computer–Mediated Communication, *Social Science Computer Review*
76. [Lee and Nass '02] Experimental Tests of Normative Group Influence and Representation Effects in Computer-Mediated Communication: When Interacting Via Computers Differs From Interacting With Computers, *Human Communication Research*
77. *Volume 28 Page - July 2002*
78. [Kraut, Gergle et al. '02] The use of visual information in shared visual spaces: informing the development of virtual co-presence, *ACM CSCW'02*

Society and Systems

Readings about society and system will be drawn from the area of computer-mediated communication, science, technology and society research, and human computer interaction (HCI). In CMC and internet research, researchers have studied how people incorporate internet and computers in our daily life and how the computer shapes the society that we live and interpersonal relationships between individuals. The ways that people use media is by no means unilateral. New phenomena of social use of computers were reported and the growing importance of digital devices in people's daily life was repeatly observed. The ways that people choose and use media to achieve their communication goals could very well be depending on some social factors, such as impression management and self-presentation, and individual factors, such personality, motivation, gender, etc.

Readings I draw from these two areas will include research results on characteristics of people who use computer/digital devices to facilitate their interpersonal communication, types of systems that have been widely used and the purposes and factors associated with their choices of media or interaction, ways that individuals interact with technology and others, and how the use of digital devices has changed the society as a whole. By situating the information and communication technologies within a big context, these readings will help me understand how design of systems has shaped users' expectations for technologies, and has helped influence usage patterns for different technologies.

In general, questions that will be used to guide the reading collection are:
- the CMC systems have been migrated from text-only to a combination of text and graphical. What're the drives for this change, and what has been changed?
- what are the usage patterns that have been reported for different technologies?

System - Candidate Readings:

79. [Wellman '04] The three ages of internet studies: ten, five and zero years ago, *new media & society*
80. [Silver '00] Looking Backwards, Looking Forward: Cyberculture Studies 1990-2000, *Web.studies: Rewiring Media Studies for the Digital Age*
81. [Lamerichs and Molder '03] Computer-mediated communication: from a cognitive to a discursive model, *new media & society*
82. [Herring '04] Slouching toward the ordinary: current trends in computer-mediated communication, *new media & society*
83. [Kraut, Patterson et al. '98] Internet Paradox: A social Technology That Reduces Social Involvement and Psychological Well-Being? *American Psychologist*
84. [Jones '94] Understanding Community in the Information Age, *CyberSociety: Computer-Mediated Communication and Community*
85. [Wellman '05] Community: from neighborhood to network, *Communications of the ACM*
86. [Joinson '03] Chapter 7: A Framework for Understanding Internet Behavior, *Understanding the Psychology of Internet Behavior (Virtual Worlds, Real Lives)*
87. [Gutwin, Penner et al. '04] Group awareness in distributed software development, *CSCW'04*
88. [Fisher and Dourish '04] Social and Temporal Structures in Everyday Collaboration, *Proceedings of the 2004 ACM Conference on Human Factors in Computing Systems (CHI'04)*
89. [Ellison '06] Managing impressions online: Self-presentation processes in the online dating environment, *Journal of Computer-Mediated Communication*
90. [Jacobson '99] Impression Formation in Cyberspace: Online Expectations and Offline Experiences in Text-based Virtual Communities, *Journal of Computer-mediated Communication*
91. [Blood '04] How blogging software reshapes the online community, *Communications of the ACM*
92. [Turner, Smith et al. '05] Picturing Usenet: Mapping Computer-mediated collective action, *Journal of Computer -Mediated Communication*
93. [Fisher, Smith et al. '06] You Are Who You Talk To: Detecting Roles in Usenet Newsgroups, *Proceedings of the 39th Hawaii International Conference on System Sciences - 2006*

94. [Grinter and Eldridge '01] y do tngrs luv 2 txt msg? *Proceedings of the Seventh European Conference on Computer-Supported Cooperative Work (ECSCW'01)*
95. [Fiore, LeeTiernan et al. '02] Observed Behavior and Perceived Value of Authors in Usenet Newsgroups: Bridging the Gap, *Proc. CHI'02*
96. [Joyce and Kraut '06] Predicting continued participation in newsgroups, *Journal of Computer-Mediated Communication*
97. [Erickson, Smith et al. '99] Socially Translucent Systems: Social Proxies, Persistent Conversation, and the Design of 'Babble', *Proceedings of CHI '99*
98. [Erickson and Kellogg '04] Social Proxies, *Encyclopedia of Human Computer Interaction*
99. [Pinch and Bijker '89] The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other, *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*

Bibliography

1. Walther, J. B. and M. R. Parks (2002). Cues Filtered Out, Cues Filtered In: Computer-Mediated Communication and Relationships. *Handbook of Interpersonal Communication*. M. L. Knapp and J. Daly, Sage Publications**:** 529-563.

[Area] Theory

[Abst.] N/A

[Summary] This is a book chapter that talks about different theories that have been developed to explain the interpersonal dynamics of CMC. The theories are categorized to four groups labeled as cues filtered out, cues to chose by, cues filtered in, cues about us, and cues bent and twisted. These theories tried to explain people's conception of social cues and use of them for enabling the communication from different perspective.

2. Burgoon, J. K. and G. D. Hoobler (2002). Nonverbal Signals. *Handbook of Interpersonal Communication*. M. L. Knapp and J. A. Daly, Sage Publications**:** 240-299.

[Area] Theory

[Abst.] N/A

[Summary] This chapter overviews research on human's nonverbal behaviors. It analyzed the role of nonverbal signals in interpersonal communication, and described their associated social functions. It also reviewed various research results on how these nonverbal signals have been combined with the verbal stream to achieve particular functions or purposes for social interaction.

3. Walther, J. B., T. Loh, et al. (2005). "Let me count the ways: The Interchange of Verbal and Nonverbal Cues in Computer-Mediated and Face-to-Face Affinity." *Journal of Language and Social Psychology* **24**(1): 36-65.

[Area] Theory, Method

[Abst.] Alternative views of computer-mediated communication suggest that it is devoid of affective cues and interpersonal expression, or that the translation of affect into verbal cues facilitates relational communication. Little research has examined basic affective communication online, mirroring a dearth of empirical research identifying spontaneous affective verbal cues in face-to-face interaction. An experiment prompted participants to enact greater or lesser affinity in face-to-face or synchronous computer chat dyads in order to assess the proportion of affect expressed verbally online compared to that which is verbal offline and the specific behaviors that account for affective communication in each channel.Partners' ratings demonstrated affective equivalency across settings. Analyses of the verbal, kinesic, and vocalic behaviors of face-to-face participants and verbal transcripts from computer sessions revealed specific cues in each condition that led to these ratings. Results support a primary but previously untested proposition in the social information processing theory of mediated interaction.

[Summary] There are two types of theories on interpersonal communication in CMC. One is called social present theory, or cue-filtered out approach, that thinks that the reduction of nonverbal cues available in CMC led to reductions in the capacity to transmit and receive interpersonal impressions and warmth. An opposite theory, called social information processing thoery posits that people will deploy whatever communication cues available to form impressions and develop relationship. This study presented in this paper is to confirm the latter theory, and find out what are the major cues that people use to form affinity in both FTF and CMC. The affinity is measure interms of immediacy and affectionate communication. Their major findings are (1) people use significant more nonverbal cues, little verbal cues, to formulate affinity In FTF conversation, yet use verbal cues in CMC environment, and (2) major

cues used in FTF include verbal cues (insult, offer personal information), kinesic cues (body relaxation, smiling, gaze), vocalic cues (vocal pleasantness, pauses during speech), and major cues used in CMC include verbal cues (explicit positive affection, changing the subject, indirect disagreement, praise plus novel proposition). This study is useful for my GE in ways that it offers a good insight on how people have been reply on nonverbal cues to create affinity, the major nonverbal cues that people used in FTF communication, and a good example of the lab study setting and statistical data analysis plan.

4. Riva, G. (2002). "The Sociocognitive Psychology of Computer-Mediated Communication: The Present and Future of Technology-Based Interactions." *CyberPsychology & Behavior* **5**(6): 581-598.

[Area] Theory

[Abst.] The increased diffusion of the Internet has made computer-mediated communication (CMC) very popular. However, a difficult question arises for psychologists and communication researchers: "What are the communicative characteristics of CMC?" According to the "cuesfiltered-out" approach, CMC lacks the specifically relational features (social cues), which enable the interlocutors to identify correctly the kind of interpersonal situations they find themselves in. This paper counters this vision by integrating in its theoretical frame the different psycho-social approaches available in current literature. In particular, the paper describes the characteristics of the socio-cognitive processes—emotional expression, context definition, and identity creation—used by the interlocutors to make order and create relationships out of the miscommunication processes typical of CMC. Moreover, it presents the emerging forms of CMC—instant messaging, shared hypermedia, weblogs, and graphical chats—and their possible social and communicative effects.

[Summary]

5. Nardi, B. and S. Whittaker (2002). The place of face to face communication in distributed work. *Distributed work: New research on working across distance using technology*. P. J. H. S. Kiesler. Cambridge, MA, MIT Press**:** 83-110.

[Area] Theory, Design

[Abst.] Most distributed work requires mediated communication, but the appropriate use of mediated, as compared with face-to-face communication, is not well understood. From our ethnographic research on workplace communication, we characterize unique aspects of face-to-face communication. Face to face communication supports touch, shared activities, eating and drinking together, as well as informal interactions and attention management. We argue that these activities are crucial for sustaining the social relationships that make distributed work possible. We contrast these social aspects of communication with the informational aspects emphasized by traditional communication theories, arguing that social linkages are a precondition of information exchange. We also document the disadvantages of face to face communication – that it can be disruptive, expensive and effortful – describing when mediated communication is preferable. We discuss the design of "media ecologies" that balance the advantages and disadvantages of mediated and face to face communication to provide cost-effective solutions for communication in distributed organizations.

[Summary]

6. Spears, R., M. Lea, et al. (2001). Social psychological theories of computer-mediated communication: Social gain or social pain? *The New Handbook of Language and Social Psychology*. P. Robinson and H. Giles, New York: Wiley**:** 601-624.

[Area] Theory

[Abst.]

[Summary] In this chapter, the author proposed a social identity model of deindividuation effects (SIDE) to explain the social effects of CMC. The proposal of this model is based on author's discussion of prior CMC theories based on a concept of information processing and cocepts in social psychology. First, the authors discussed several typical filter-out theories about CMC, namely the social presence model, media richness theory, and social informaiton processing model. The authors called these models as information processing approaches because they are based on the engineering concept of communication bandwidth that limiting information exchange will have deleterious effects on social communication. However, research has shown that the social nature of CMC cannot determined from its technical efficiency and there is no generic effect of CMC because of its reduced bandwidth and social exchange. Besides these information processing models, the reduced social cues model (RSC) investigated the processes by which the reduction of non-verbal cues and other contextual information in CMC might affect the social behavior of individuals and groups. It asserts that deindividuation attenuates normative influence, and reduced evaluation concerns, and ultimately lead to greater uninhibted, antisocial behaviors, group polarization and extreme decision making. While the authors agree with the deindividuation effect of CMC, it was found that there are lots of inconsistency in the the ways the deinidividuation affects the social behaviors described in RSC. The SIDE model the authors proposed argues that, although CMC filter out many interpersonal cues that identify and individuate the communicators, group and category level cues that are communicated relatively independetly of bandwidth

considerations are given more opportunity to influence interaction, and the definition of the self and situation. Deindividuation cuased by immersion and anonymity in the group does not result in loss of identity or reduced self-awareness, but rather results in a shift of self-focus from personal to group identity. Anonymity actually enhances group identification, self-categorization as a group member and self-stereotyping. In sum, the authors conclude that CMC and Internet are not linguistically unidimensional or impoverished media. Although CMC is characterized by a impresonal task-oriented mono-culture that constrains the language used in this medium, CMC and Internet particularly provide some of the social freedoms, and channels for expression through its linguistic expression.

7. Whittaker, S. (2003). Theories and Methods in Mediated Communication. *Handbook of Discourse Processes*, LEA, Mahwah, NJ.

[Area] Theories and Methods in Mediated Communication
[Abst.]
[Summary]

8. Tidwell, L. C. and J. B. Walther (2002). "Computer-Mediated Communication Effects on Disclosure, Impressions, and Interpersonal Evaluations: Getting to Know One Another a Bit at a Time." *Human Communication Research* **28**(3): 317-348.

[Area] Theory, Method

[Abst.] This investigation examined how computer-mediated communication (CMC) partners exchange personal information in initial interactions, focusing on the effects of communication channels on self-disclosure, question-asking, and uncertainty reduction. Unacquainted individuals (N = 158) met either face-to-face or via CMC. Computer-mediated interactants exhibited a greater proportion of more direct and intimate uncertainty reduction behaviors than unmediated participants did, and demonstrated significantly greater gains in attributional confidence over the course of the conversations. The use of direct strategies by mediated interactants resulted in judgments of greater conversational effectiveness by partners. Results illuminate some microstructures previously asserted but unverified within social information processing theory (Walther, 1992), and extend uncertainty reduction theory (Berger & Calabrese, 1975) to CMC interaction.

[Summary] It examined the use of self-disclosure and persoanl question asking in the development of interpersonal impressions, comparing their use and effects in CMC and FTF first encounters. Results showed that CMC users devoted a greater proportion of their conversations to disclosures and questions than did FTF communicators, and that the personal questions asked by CMC users were more intimate. This supports SIP theory at the microlevel. This paper also includes a notion of 1 minute in FTF is not equal to 1 minute in CMC and maybe equivalent to 4 or more. This provides some support for questioning communication efficiency of CMC.

9. Baumeister, R. F. and M. R. Leary (1995). "The need to belong: Desire for interpersonal attachments as a fundamental human motivation." *Psychological Bulletin* **117**: 497-529.

[Area] Theory

[Abst.] A hypothesized need to form and maintain strong, stable interpersonal relationships is evaluated in light of the empirical literature. The need is for frequent, nonaversive interactions within an ongoing relational bond. Consistent with the belongingness hypothesis, people form social attachments readily under most conditions and resist the dissolution of existing bonds. Belongingness appears to have multiple and strong effects on emotional patterns and on cognitive processes. Lack of attachments is linked to a variety of ill effects on health, adjustment, and well-being. Other evidence, such as that concerning satiation, substitution, and behavioral consequences, is likewise consistent with the hypothesized motivation. Several seeming counterexamples turned out not to disconfirm the hypothesis. Existing evidence supports the hypothesis that the need to belong is a powerful, fundamental, and extremely pervasive motivation.

[Summary] This paper explains human need to belong as one of the fundamental needs in human's life. According to the author, people always have the need to belong to other groups. Deprival of this need could lead to changes in people's attitude, their behavior, or even their health condition. I put this paper on the GE list is because people are often deattached in CMC environment, and understanding how the need to belong is a fundamental human need could help me understand what draw people to CMC environment, and how they interact with each other.

10. Gardner, W. L., C. L. Pickett, et al. (2000). "Social exclusion and selective memory: How the need to belong influences memory for social events." *Personality and Social Psychology Bulletin* **26**: 486-496.

[Area] Theory

[Abst.] he need to belong has been forwarded as a pervasive human motive, influencing a range of cognitive, emotional, and behavioral responses. The current research explored the influence of belongingness needs on the selective retention of social information. Just as physical hunger results in selective memory for food-relevant stimuli, it was hypothesized that social hunger, aroused when belongingness needs were unmet, would result in selective memory for socially relevant stimuli. In two studies, the authors used a simulated computer chat room to present brief acceptance or rejection experiences to participants. Participants then read a diary containing both social and individual events. In both, rejection experiences resulted in selective memory for the explicitly social events of the diary. The implications of these results for the existence and consequences of a basic need to belong are discussed.

[Summary]

11. Pickett, C. L., W. L. Gardner, et al. (2004). "Getting a cue: The need to belong and enhanced sensitivity to social cues." *Personality and Social Psychology Bulletin* **30**(9): 1095-1107.

[Area] Theory

[Abst.] To successfully establish and maintain social relationships, individuals need to be sensitive to the thoughts and feelings of others. In the current studies, the authors predicted that individuals who are especially concerned with social connectedness-individuals high in the need to belong—would be particularly attentive to and accurate in decoding social cues. In Study 1, individual differences in the need to belong were found to be positively related to accuracy in identifying vocal tone and facial emotion. Study 2 examined attention to vocal tone and accuracy in a more complex social sensitivity task (an empathic accuracy task). Replicating the results of Study 1, need to belong scores predicted both attention to vocal tone and empathic accuracy. Study 3 provided evidence that the enhanced performance shown by those high in the need to belong is specific to social perception skills rather than to cognitive problem solving more generally.

[Summary]

12. Rudich, E. A. and R. R. Vallacher (1999). "To belong or to self-enhance? Motivational bases for choosing interaction partners." *Personality and Social Psychology Bulletin* **25**(11): 1387-1404.

[Area] Theory

[Abst.] The present research investigated motives for choosing interaction partners in people with varying levels of self-esteem. The authors predicted that high self-esteem individuals would choose to interact with someone who provided positive feedback about their personalities, regardless of his or her interest in forming a relationship, whereas those with low self-esteem would choose to interact with someone who expressed interest in forming a relationship, regardless of his or her assessment of their personalities. In four studies, participants were asked to choose between two interaction partners who provided feedback that included different combinations of acceptance and positivity. Results supported the authors' prediction. Discussion addressed the hierarchical nature of social motivation and the seemingly paradoxical interaction preferences of low self-esteem individuals.

[Summary] This paper empirically studied how people decide on which partners to interact with based on the feedback they provides and their interests in forming a relationship. They concluded that peopel's desire to interact with others reflects two basic motives - the need to belong and the need for self-esteem. Because a person's level of self-esteem provides a measures of how well he or she is connected to other people, it provides a basis for predicting what he or she will be most concerned with in choosing among potential interaction partners. These conclusions could be useful in inferring the individual differences in online communities, and predicting who will response to whom.

13. Williams, K. D., C. K. T. Cheung, et al. (2000). "Cyberostracism: Effects of being ignored over the internet." *Journal of Personality and Social Psychology* **79**(5): 748-762.

[Area] Theory

[Abst.] Ostracism is such a widely used and powerful tactic that the authors tested whether people would be affected by it even under remote and artificial circumstances. In Study 1, 1,486 participants from 62 countries accessed the authors' on-line experiment on the Internet, They were asked to use mental visualization while playing a virtual tossing game with two others (who were actually computer generated and controlled). Despite the minimal nature of their experience, the more participants were ostracized, the more they reported feeling bad, having less control, and losing a sense of belonging. In Study 2, ostracized participants were more likely to conform on a subsequent task. The results are discussed in terms of supporting K. D. Williams's (1997) need threat theory of ostracism.

[Summary]

14. Bradner, E. and G. Mark (2002). *Why Distance Matters: Effects on Cooperation, Persuasion and Deception*. Proceedings of the ACM Conference on CSCW (CSCW'02), New Orleans, New York: ACM Press.226-235

[Area] Theory

[Abst.] In this study, we examine how geographic distance affects collaboration using computer-mediated communication technology. We investigated experimentally the effects of cooperating partners being in the same or distant city on three behaviors: cooperation, persuasion, and deception using video conferencing and instant messaging (IM). Our results indicate that subjects are more likely to deceive, be less persuaded by, and initially cooperate less, with someone they believe is in a distant city, as opposed to in the same city as them. Although people initially cooperate less with someone they believe is far away, their willingness to cooperate increases quickly with interaction. Since the same media were used in both the far and near city conditions, these effects cannot be attributed to the media, but rather to social differences. This study confirms how CSCW needs to be concerned with developing technologies for bridging social distance, as well as geographic distance.

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15. Kling, R. (1991). "Cooperation, Coordination and Control in Computer-Supported Work." *Communications of the ACM* **34**(12): 83-88.

[Area] Theory

[Abst.]

[Summary]

16. Erickson, T., D. N. Smith, et al. (1999). *Socially Translucent Systems: Social Proxies, Persistent Conversation, and the Design of 'Babble'*. Proceedings of CHI '99, ACM Press.72 - 79

[Area] Design

[Abst.] We take as our premise that it is possible and desirable to design systems that support social processes. We describe Loops, a project which takes this approach to supporting computer-mediated communication (CMC) through structural and interactive properties such as persistence and a minimalist graphical representation of users and their activities that we call a social proxy. We discuss a prototype called "Babble" that has been used by our group for over a year, and has been deployed to six other groups at the Watson labs for about two months. We describe usage experiences, lessons learned, and next steps.

[Summary]

17. Dourish, P. and V. Bellotti (1992). *Awareness and Coordination in Shared Workspaces*. Proceedings of the 1992 ACM Conference on Computer-Supported Cooperative Work (CSCW'92).107-114

[Area] Theory

[Abst.] Awareness of individual and group activities is critical to successful collaboration and is commonly supported in CSCW systems by active, information generation mechanisms separate from the shared workspace. These mechanisms penalise information providers, presuppose
relevance to the recipient, and make access difficult. We discuss a study of shared editor use which suggests that awareness information provided and exploited passively through the shared workspace, allows users to move smoothly between close and loose collaboration, and to assign and coordinate work dynamically. Passive awareness mechanisms promise effective support for collaboration requiring this sort of behaviour, whilst avoiding problems with active approaches.

[Summary]

18. Gunawardena, C. N. (1995). "Social Presence Theory and Implications for Interaction and Collaborative Learning in Computer Conferences." *International Journal of Educational Telecommunications* **1**(2/3): 147-166.

[Area] Theory

[Abst.] This paper examines research on social presence theory and the implications for analyzing interaction, communication, collaborative learning, and the social context of computer-mediated communication (CMC). Two studies that examined whether social presence is largely an attribute of the communication medium or users' perception of the medium are discussed. It can be concluded from the results that even though CMC is

considered to be a medium that is low in social context cues, it can be perceived as interactive, active, interesting, and stimulating by conference participants. However, it is the kind of interactions that take place between the participants, and the sense of community that is created during the conference, that will impact participants' perceptions of CMC as a "social" medium. Therefore, the impetus falls upon the moderators of computer conferences to create a sense of online community in order to promote interaction and collaborative learning.

[Summary]

19. Kollock, P. and M. Smith (1996). Managing the Virtual Commons: Cooperation and Conflict in Computer Communities. *Computer-Mediated Communication: Linguistic, Social, and Cross-Cultural Perspectives*. S. Herring, Amsterdam: John Benjamins.**:** 109-128.

[Area] Theory
[Abst.]
[Summary]

20. Schmidt, K. (2002). "The problem with 'Awareness': Introductory Remarks on 'Awareness in CSCW'." *Computer Supported Cooperative Work* **11**(3-4): 285-298.

[Area] Theory
[Abst.]
[Summary] This paper raised the issue of awareness that people could forming seamless cooperation with others, yet left very cues to reveal how they did it. This author first reviewed various usage of awareness, and concluded that there are not single right way of using this word. However, the awareness does seem to indicate a highly active and highly skilled information collection. Then the questions are leading to how people did it. What information are implicit available, how people exploit and identify the cues, What makes people aware of some not the other. This paper doesn't provide answers. Interesting enough, this paper makes me think about how people aware of others in an open space. For example, a person's need to belong will make him sense of information about group bonds, further takes advantage of this particular types of cues.

21. Bos, N., J. Olson, et al. (2006). *Collocation blindness in partially distributed groups: is there a downside to being collocated?* ACM CHI'06.1313 - 1321

[Area] Theory
[Abst.] Under what circumstances might a group member be better off as a long-distance participant rather than collocated? We ran a set of experiments to study how partially-distributed groups collaborate when skill sets are unequally distributed. Partially distributed groups are those where some collaborators work together in the same space (collocated) and some work remotely using computer-mediated communications. Previous experiments had shown that these groups tend to form semi-autonomous 'in-groups'. In this set of experiments the configuration was changed so that some player skills were located only in the collocated space, and some were located only remotely, creating local surplus of some skills and local scarcity of others in the collocated room. Players whose skills were locally in surplus performed significantly worse. They experienced 'collocation blindness' and failed to pay enough attention to collaborators outside of the room. In contrast, the remote players whose skills were scarce inside the collocated room did particularly well because they charged a high price for their skills.
[Summary]

22. Preece, J. and D. Maloney-Krichmar (2003). Online Communities. *Handbook of Human-Computer Interaction*. J. Jacko and A. A. Sears, Lawrence Erlbaum Associates Inc. Publishers**:** 596-620.

[Area] Theory
[Abst.]
[Summary]

23. Preece, J. (2000). Online Communities: Designing Usability, Supporting Sociability (Chapter 5: Research Speaks to Practice: Interpersonal Communication; Chapter 6: Research Speaks to Practice: Groups), Wiley Chichester**:** 147-200.

[Area] Theory
[Abst.]
[Summary]

24. De Souza, C., S., and J. Preece (2004). "A framework for analyzing and understanding online communities. Interacting with Computers." *The Interdisciplinary Journal of Human-Computer Interaction*.

[Area] Method

[Abst.] Social interactions in online communities are varied and often complex, as are the communities themselves. The characteristics of the people, the range of purposes they pursue, the type of governance policies they develop, and the design of the software supporting a community, vary from community to community. These characteristics determine a community's sociability. Thus, the availability of powerful analytic tools to help designers understand existing technology supported social activity online can broaden the spectrum of design knowledge and promote new insights for designing computer applications of this sort. In this paper, we present one such analytic tool – a theoretically-based online community framework (OCF). In order to demonstrate the efficacy of the framework we elaborate on its communication constituent using semiotic theory to help us. This constituent is particularly important in the OCF because it addresses computermediated communication between community members, and also communication from interactive software designers to users via the software they design. This latter kind of communication can shape the community's experience to a considerable extent, as our analysis shows. The paper ends with an agenda for future research.

[Summary]

25. Neale, D. C., J. M. Carroll, et al. (2004). "Evaluating Computer-supported Cooperative Work: Models and Frameworks." *CSCW 2004*: 112-121.

[Area] Method

[Abst.] Evaluating distributed CSCW applications is a difficult endeavor. Frameworks and methodologies for structuring this type of evaluation have become a central concern for CSCW researchers. In this paper we describe the problems involved in evaluating remote collaborations, and we review some of the more prominent conceptual frameworks of group interaction that have driven CSCW evaluation in the past. A multifaceted evaluation framework is presented that approaches the problem from the relationships underlying joint awareness, communication, collaboration, coordination, and work coupling. Finally, recommendations for carrying out multifaceted evaluations of remote interaction are provided.

[Summary]

26. Orlikowski, W. J. and J. Yates (2002). "Genre Systems: Structuring Interaction through Communicative Norms." *The Journal of Business Communication, January, 2002* **39**(1): 13-35.

[Area] Method

[Abst.] In this paper, we demonstrate that teams may use genre systems -- sequences of interrelated communicative actions -- strategically or habitually to structure their collaboration. Using data from three teams' use of a collaborative electronic technology, Team Room, over an eight month period, we illustrate that genre systems are a means of structuring six aspects of communicative interaction: purpose (why), content (what), form (how), participants (who/m), time (when), and place (where). We suggest that CSCW researchers, designers, implementors, and users may benefit from an explicit recognition of the role genre systems can play in collaboration.

[Summary]

27. Rowley, D. E. (1994). *Usability Testing in the field: bringing the laboratory to the user*. Proc. CHI'94, ACM Press.252 - 257

[Area] Method

[Abst.] Usability testing is not always best accomplished within the confines of a specially equipped usability laboratory. Logistics and resource constraints sometimes necessitate taking the testing out on the road. Field testing provides an opportunity to sample from a distributed customer base -- a requirement of significant relevance when competing in a global market. What's more, usability testing in the field can offer benefits in both marketing and public relations that in-house testing may miss. This paper describes some of the issues surrounding a field testing program, and gives suggestions about how such an undertaking can be accomplished under strict financial, resource and schedule limitations. A case study is presented to help illustrate the planning and evaluation process, and to provide insights into the types of problems such an endeavor is likely to encounter, as well as some valuable lessons learned along the way.

[Summary]

28. Jacob, R. J. K. and K. S. Karn (2003). Eye Tracking in Human-Computer Interaction and Usability Research: Ready to Deliver the Promises (Section Commentary). *The Mind's Eye: Cognitive and Applied Aspects of Eye Movement Research*. R. R. J. Hyona, and H. Deubel, Amsterdam, Elsevier Science**:** 573-605.

[Area] Method

[Abst.]

[Summary]

29. Burton, M. C. and J. B. Walther (2001). "The value of Web log data in use-based design and testing." *Journal of Computer-Mediated Communication* **6**(3): Retrieved June 26, 2006, from http://jcmc.indiana.edu/vol6/issue3/burton.html.

[Area] Method

[Abst.] Web-based logs contain potentially useful empirical data with which World Wide Web (Web) designers and design theorists can assess usability and effectiveness of design choices. Most Web design guidelines from artistic or usability principles feature no empirical validation, while empirical studies of Web use typically rely on observer ratings. Web server logs and client-side logs can provide naturally-occurring, unobtrusive usage data, partially amenable to normative use assessments but particularly useful in experimental research comparing alternative Web designs. Identification of types of Web server logs, client logs, types and uses of log data, and issues associated with the validity of these data are enumerated. Frameworks that outline how sources of use-based data can be triangulated to assess Web design are illustrated. Finally, an approach to experimentation that overcomes many data validity issues is presented and illustrated through a pilot experiment that used server logs to compare user responses to frames, pop-up, and scrolling arrangements of a single Web site.

[Summary]

30. Zar, J. H. (1999). *Biostatistical Analysis*, Prentice-Hall.

[Area] Method

[Abst.]

[Summary]

31. Stevens, J. P. (2002). *Applied Multivariate Statistics for the Social Sciences*, Lawrence Erlbaum Associates, Publishers.

[Area] Method

[Abst.]

[Summary]

32. Kraut, R., J. Olson, et al. (2003). "Psychological Research Online: Opportunities and Challenges." *APA-Online*: Retrieved on April 12, 206, from http://www.apa.org/science/apainternetresearch.pdf.

[Area] Method

[Abst.] As the Internet has changed communication, commerce, and the distribution of information, so too it is changing psychological research. Psychologists can observe new or rare phenomena online and can do research on traditional psychological topics more efficiently, enabling them to expand the scale and scope of their research. Yet these opportunities entail risk both to research quality and to human subjects. Internet research is inherently no more risky than traditional observational, survey or experimental methods. Yet the rapidly changing nature of technology, norms, and online behavior means that the risks and safeguards against them will differ from those characterizing traditional research and will themselves change over time. This paper describes some benefits and challenges of conducting psychological research via the Internet and offers recommendations to both researchers and Institutional Review Boards for dealing with the challenges.

[Summary] In this paper, Kraut and his colleagues discussed in detail about both the advantage and disadvantage of conducting pyschological studies online. The use of internet provides researchers opportunities to observe new or rare phenomena online and can do research on traditional psychological topics more efficiently. The internet also enable researchers to expand the scale and scope of their research. At the same time, Internet also poses risks challenges to research quality and to human subjects.

33. Preece, J. (2000). Online Communities: Designing Usability, Supporting Sociability (Chapter 10: Assessing Needs and Evaluating Communities), Wiley Chichester**:** 299-344.

[Area] Method

[Abst.]

[Summary]

34. Harris, R. and A. Muirhead (2004). *Online Learning Community Research - Some Influences of Theory on Methods*. Networked Learning Conference 2004.http://www.networkedlearningconference.org.uk/past/nlc2004/proceedings/symposia/symposium7/harris_muirhead.htm

[Area] Method

[Abst.]

[Summary]

35. Rafaeli, S., G. Ravid, et al. (2004). *De-Lurking in Virtual Communities: A Social Communication Network Approach to Measuring the Effects of Social and Cultural Capital*. Proceedings of the 37th Annual Hawaii International Conference on System Sciences (HICSS'04).203 - 212

[Area] Method

[Abst.] The a-symmetry of activity in virtual communities is of great interest. While participation in the activities of virtual communities is crucial for a community's survival and development, many people prefer lurking, that is passive attention over active participation. Often, lurkers are the vast majority. There could be many reasons for lurking. Lurking can be measured and perhaps affected by both dispositional and situational variables. This project investigates social and cultural capital, situational antecedents of lurking and de-lurking. We propose a novel way of measuring such capital, lurking, and de-lurking. We try to figure out what are the triggers to active participation. We try to answer this by mathematically defining a social communication network of activities in authenticated discussion forums. Authenticated discussion forums provide exact log information about every participant's activities and allow us to identify lurkers that become first time posters. The proposed Social Communication Network approach (SCN) is an extension of the traditional social network methodology to include, beyond human actors, discussion topics (e.g. Usenet newsgroups threads) and subjects of discussions (e.g. Usenet groups) as well. In addition the Social Communication Network approach distinguishes between READ and POST link types. These indicate active participation on the part of the human actor. We attempt to validate this model by examining the SCN using data collected in a sample of 82 online forums. By analyzing a graph structure of the network at moments of initial postings we verify several hypotheses about causes of de-lurking and provide some directions towards measuring active participation in virtual communities

[Summary]

36. Carroll, J. M., M. B. Rosson, et al. (2005). *Collective Efficacy as a Measure of Community*. CHI'05.1-10

[Area] Method

[Abst.] As human-computer interaction increasingly focuses on mediated interactions among groups of individuals, there is a need to develop techniques for measurement and analysis of groups that have been scoped at the level of the group. Bandura's construct of perceived self-efficacy has been used to understand individual behavior as a function of domain-specific beliefs about personal capacities. The construct of collective efficacy extends self-efficacy to organizations and groups, referring to beliefs about collective capacities in specific domains. We describe the development and refinement of a collective efficacy scale, the factor analysis of the construct, and its external validation in path models of community-oriented attitudes, beliefs, and behaviors.

[Summary] This paper tried to extend Bandura's self-efficacy and collective efficacy and constrct a community collective efficacy to measure a group member's belief about shared capacity of a group or an organization. They presented a refined community collective efficacy construct and conducted several studies to validate this construct. They further used path models to illustrate the relationships between the community collective efficacy with other social measures, such as community involvement, internet use, internet experience, etc. They reported that people who have a high collective efficacy have a stronger sense of belonging.

37. Herring, S., Scheidt, L., Bonus, S. and Wright, E. (2004). *Bridging the gap: A genre analysis of weblogs.* Proceedings 37th Annual HICSS Conference, 2004. Big Island, Hawaii

[Area] Method

[Abst.] Weblogs (blogs)—frequently modified web pages in which dated entries are listed in reverse chronological sequence—are the latest genre of Internet communication to attain widespread popularity, yet their characteristics have not been systematically described. This paper presents the results of a content analysis of 203 randomly-selected weblogs, comparing the empirically observable features of the corpus with popular claims about the nature of weblogs, and finding them to differ in a number of respects. Notably, blog authors, journalists and scholars alike exaggerate the extent to which blogs are interlinked, interactive, and oriented towards external events, and underestimate the importance of blogs as individualistic, intimate forms of self-expression. Based on the profile generated by the empirical analysis, we consider the likely antecedents of the blog genre, situate it with respect to the dominant forms of digital communication on the Internet today, and advance predictions about its long-term impacts.

[Summary]

38. Erickson, T. (1997). *Social interaction on the Net: Virtual community as participatory genre*. Thirtieth Hawaii International Conference on System Sciences, Maui, Hawaii.

[Area] Method

[Abst.] The phrase "virtual community" is often used to describe long term, computer-mediated conversations amongst large groups. This paper suggests that such conversations may be better viewed as instances of a participatory genre, rather than as community. A genre-oriented analysis is useful because it encourages a focus on the medium within which the discourse is embodied. As an example we analyze an on-line conversation from the perspective of genre: we identify its communicative purpose, regularities of form and substance (such as word play and affirmation), and the situation which gives rise to these regularities. We then examine ways in which the discourse medium supports these regularities and enables participants to establish and reinforce the conversation's underlying conventions. More generally, we believe that genre-oriented analyses such as this can play an important role in the design of participatory media.

[Summary]

39. Haynes, S. R., S. Purao, et al. (2004). *Situating evaluation in scenarios of use*. CSCW 04.92 - 101

[Area] Method

[Abst.] We report on the use of scenario-based methods for evaluating collaborative systems. We describe the method, the case study where it was applied, and provide results of its efficacy in the field. The results suggest that scenario-based evaluation is effective in helping to focus evaluation efforts and in identifying the range of technical, human, organizational, and other contextual factors that impact system success. The method also helps identify specific actions such as prescriptions for design to enhance system effectiveness. However, we found the method somewhat less useful for identifying the measurable benefits gained from a CSCW implementation, which was one of our primary goals. We discuss challenges faced applying the technique, suggest recommendations for future research, and point to implications for practice.

[Summary]

40. Jones, E., C. Gallois, et al. (1999). "Strategies of Accommodation: Development of a Coding System for Conversational Interaction." *Journal of Language and Social Psychology* **18**(2): 123-151.

[Area] Method

[Abst.] his study describes a coding system developed to operationalize the sociolinguistic strategies proposed by communication accommodation theory (CAT) in an academic context. Fifty interactions between two students (of Australian or Chinese ethnic background) or a student and faculty member were videotaped. A turn-and episode-based coding system was developed, focusing on verbal and nonverbal behavior. The development of this system is described in detail, before results are presented. Results indicated that status was the main influence on choice of strategies, particularly the extent and type of discourse management and interpersonal control. Participants' sex and ethnicity also played a role: Male participants made more use of interpretability (largely questions), whereas female participants used discourse management to develop a shared perspective. The results make clear that there is no automatic correspondence between behaviors and the strategies they constitute, and they point to the appropriateness of conceptualizing behavior and strategies separately in CAT.

[Summary]

41. Hancock, J. T., L. Curry, et al. (2005). *Automated Linguistic Analysis of Deceptive and Truthful Synchronous Computer-Mediated Communication*. HICSS '05.22c- 22c

[Area] Method

[Abst.] The present study investigates changes in both the sender's and the target's linguistic style across truthful and deceptive dyadic communication in a synchronous text-based setting. A computer-based analysis of 242 transcripts revealed that senders produced more words overall, decreased their use of self-oriented pronouns but increased other-oriented pronouns, and used more sense-based descriptions (e.g., seeing, touching) when lying than when telling the truth. In addition, motivated senders avoided causal terms during deception, while unmotivated senders relied more heavily on simple negations. Receivers used more words when being deceived, but they also asked more questions and used shorter sentences when being lied to than when being told the truth, especially when the sender was unmotivated. These findings are discussed in terms of their implications for linguistic style matching and interpersonal deception theory.

[Summary]

42. Gergle, D., R. E. Kraut, et al. (2004). "Language efficiency and visual technology: Minimizing collaborative effort with visual information." *Journal of Language and Social Psychology* **23**: 491-517.

[Area] Design, Method

[Abst.] When collaborators work on a physical task, seeing a common workspace transforms their language use and reduces their overall collaborative effort. This article shows how visual information can make communication more efficient. In an experiment, dyads collaborated on building a puzzle. They communicated

without a shared visual space, using a shared space featuring immediately updated visual information, and using a shared space featuring delayed visual updating. Having the shared visual space helps collaborators understand the current state of their task and enables them to ground their conversations efficiently, as seen in the ways in which participants adapted their discourse processes to their level of shared visual information. These processes are associated with faster and better task performance. Delaying the visual update reduces benefits and degrades performance. The shared visual space is more useful when tasks are visually complex or when participants have no simple vocabulary for describing their environments.

[Summary]

43. Lee, E.-J. and C. Nass (2002). "Experimental Tests of Normative Group Influence and Representation Effects in Computer-Mediated Communication: When Interacting Via Computers Differs From Interacting With Computers." *Human Communication Research*
Volume 28 Page - July 2002 **28**(3): 349 -381.

[Area] Desig, Method, Theory

[Abst.] Two experiments addressed the questions of if and how normative social influence operates in anonymous computer-mediated communication (CMC) and human-computer interaction (HCI). In Experiment 1, a 2 (public response vs. private response) × 2 (one interactant vs. four interactants) × 3 (textbox vs. stick figure vs. animated character) mixed-design experiment (N = 72), we investigated how conformity pressure operates in a simulated CMC setting. Each participant was asked to make a decision in hypothetical social dilemmas after being presented with a unanimous opinion by other (ostensible) participants. The experiment examined how the visual representation of interaction partners on the screen moderates this social influence process. Group conformity effects were shown to be more salient when the participant's responses were allegedly seen by others, compared to when the responses were given in private. In addition, participants attributed greater competence, social attractiveness, and trustworthiness to partners represented by anthropomorphic characters than those represented by textboxes or stick figures. Experiment 2 replicated Experiment 1, replacing interaction with a computer(s) rather than (ostensible) people, to create an interaction setting in which no normative pressure was expected to occur. The perception of interaction partner (human vs. computer) moderated the group conformity effect such that people expressed greater public agreement with human partners than with computers. No such difference was found for the private expression of opinion. As expected, the number of computer agents did not affect participants' opinions whether the responses were given in private or in public, while visual representation had a significant impact on both conformity measures and source perception variables.

[Summary] An interesting study shows that visual representation had a significatn impact on conformity measures and source perception variables.

44. Bradner, E., W. A. Kellogg, et al. (1999). *The adoption and use of "BABBLE": a field study of chat in the workplace.* Proceedings of the Sixth European conference on Computer supported cooperative work.139-158

[Area] S&S

[Abst.] One way to gain a principled understanding of computer-mediated communication (CMC) use in the wild is to consider the properties of the communication medium, the usage practices, and the social context in which practices are situated. We describe the adoption and use of a novel, chat-like system called Babble. Drawing on interviews and conversation logs from a 6-month field study of six different groups at IBM Corporation (USA), we examine the ways in which the technical properties of the system enable particular types of communicative practices such as waylaying and unobtrusive broadcast. We then consider how these practices influence (positively or negatively) the adoption trajectories of the six deployments

[Summary]

45. Kraut, R., M. Patterson, et al. (1998). "Internet Paradox: A social Technology That Reduces Social Involvement and Psychological Well-Being?" *American Psychologist* **53**(9): 1017-1031.

[Area] Methods, S&S

[Abst.] The Internet could change the lives of average citizens as much as did the telephone in the early part of the 20th century and television in the 1950s and 1960s. Researchers and social critics are debating whether the Internet is improving or harming participation in community life and social relationships. This research examined the social and psychological impact of the lnternet on 169 people in 73 households during their first 1 to 2 years on-line. We used longitudinal data to examine the effects of the Internet on social involvement and psychological well-being. In this sample, the Internet was used extensively for communication. Nonetheless, greater use of the Internet was associated with declines in participants'communication with family members in the household, declines in the size of their social circle, and increases in their depression and loneliness. These findings have implications for research, for public policy, and for the design of technology.

[Summary]

46. Moran, T. P. and R. J. Anderson (1990). *The workaday world as a paradigm for CSCW design*. Proceedings of the 1990 ACM Conference on Computer-Supported Cooperative Work (CSCW'90).381-393

[Area] Design

[Abst.] EuroPARC is developing an integrated multi-media environment as an integral part of its formal and informal working environment. From our initial experiences with this kind of technology, we and our colleagues believe that it exhibits several qualitatively different properties, which seem to call into question many of our ideas about what computer systems are and how people relate to them. This has caused us to step back and take stock of the design principles we are using and, more generally, to ask what are appropriate principles for CSCW applications and technologies. Like many others in this field, EuroPARC's concern is not simply with artifacts and their enabling technologies, but with understanding the processes and relationships which such artifacts support, including the processes by which they are designed. The discipline of design must involve a constant movement back and forth between the design and use of technologies and reflection upon those activities. This paper is in the reflective mood. We begin to lay out a design paradigm for understanding the social significance of the new technologies available for CSCW.1 By "paradigm" we are not referring to Kuhn's (1962) notion of a revolutionary theory or set of ideas, but rather to a more general pre-Kuhnian notion. We are striving for a design paradigm, not a scientific paradigm; it is a heuristic for bringing forth the important issues facing the designer. For us here, a design paradigm can be any coherent intellectual framework for guiding design. It may be a theory or a metaphor describing the central character of the design domain, both the character of the designed artifacts and the environments in which they fit.

[Summary]

47. Kyng, M. (1991). "Designing for Cooperation: Cooperating in Design." *Communications of the ACM* **34**(12): 65-73.

[Area] Design

[Abst.]

[Summary]

48. Norman, D. A. (2006). "Logic versus usage: the case for activity-centered design." *interactions* **13**(6): 45, 63.

[Area] Design

[Abst.]

[Summary]

49. Laurel, B. (1993). Chapter 5: Design Principles for Human-Computer Activity. *Computers as Theater*.

[Area] Design

[Abst.]

[Summary]

50. Mynatt, E. D., A. Adler, et al. (1997). *Design for network communities*. ACM CHI'97.210 - 217

[Area] Design

[Abst.] Collaboration has long been of considerable interest in the CHI community. This paper proposes and explores the concept of network communities as a crucial part of this discussion. Network communities are a form of technologymediated environment that foster a sense of community among users. We consider several familiar systems and describe the shared characteristics these systems have developed to deal with critical concerns of collaboration. Based on our own experience as designers and users of a variety of network communities. we extend this initial design space along three dimensions: the articulation of a persistent sense of location, the boundary tensions between real and virtual worlds, and the emergence and evolution of community.

[Summary]

51. Kaptelinin, V., B. A. Nardi, et al. (1999). "Methods & tools: The activity checklist: a tool for representing the "space" of context." *interactions* **6**(4): 27 - 39.

[Area] Design

[Abst.]

[Summary]

52. Martin, D., T. Rodden, et al. (2001). *Finding patterns in the fieldwork*. Proceedings of the Seventh European Conference on Computer-Supported Cooperative Work (ECSCW'01), Kluwer Academic Publishers.39-58

[Area] Design

[Abst.] This paper considers the potential of using patterns of cooperative interaction to support the development of general design principles drawn from a range of work settings. It reports on the development of patterns from ethnographic studies in a number of work environments. Our particular interest is in the possibilities surrounding the use of patterns as a means of organising, presenting and representing this growing corpus of ethnographic material and in the contribution this might make to CSCW design. In this paper we focus on outlining some of our experiences and difficulties in developing patterns from ethnographic studies and present some initial ideas towards the development of a pattern language to exploit the experience gained from a decade of field studies.
[Summary]

53. Cooper, A. and R. Reimann (2003). Chapter 19 Designing Look and Feel; Chapter 20 Metaphors, Idioms, and Affordances; Chapter 38 Designing for Embedded Systems. *About Face 2.0: The Essentials of Interaction Design*, Wiley Publishing**:** 225-246, 247-258, 489-506.
[Area] Design
[Abst.]
[Summary]

54. Kuniavsky, M. (2003). Chapter 8 - Contextual inquiry, task analysis, and card sorting. *Observing the user experience: A Practitioner's guide to user research*, Morgan Kaufman Publishers, San Franciso**:** 159-200.
[Area] Design
[Abst.]
[Summary]

55. Preece, J. (2000). Online Communities: Designing Usability, Supporting Sociability (Chapter 9: Guidelines: Sociability and Usability), Wiley Chichester**:** 267-298.
[Area] Design
[Abst.]
[Summary]

56. Grayson, D. and L. Coventry (1998). "The Effects of Visual Proxemic Information in Video Mediated Communication." *ACM SIGCHI Bulletin* **30**(3): 30-39.
[Area] Design
[Abst.] One of the simplest examples of non-verbal communication is that of proximity, i.e. the distance at which conversants stand (or sit) from each other when interacting. This is known to be guided by certain social rules which take into account personal relationships, culture, personality and the purpose of the discussion, violation of which leads to various psychological and behavioural effects.One such effect is persuasion. Sales people will tend to approach customers closer than other business people. Video has in the past been shown to lead to more effective negotiation and bargaining than audio only conditions in experimental tasks. So far though, it remains unknown whether or not similar effects of proximity exist within video-mediated communication --- or indeed even whether or not proximity can be conveyed through video. This study investigates the role of the proxemic information within the video image in a formal persuasion environment using both subjective and objective measures of attitude and behaviour.A simulation of a customer seeking financial advice from an advisor across a live video link had two proxemic conditions --- the image of the advisor appearing either very close or far away. Subjective impressions of both the task and technology were analysed by questionnaire and showed no subjective differences between conditions. Structural analysis of the dialogues however, indicated customers to be more interactive in the close condition. When the advisor appeared close the customer spoke more often, said more, took longer and made more instances of overlapping speech. The similarity between these results and those of familiarity studies are discussed and a hypothesis of perceived close proximity resulting in perceived familiarity is offered.The study shows that proxemic information is preserved in video conferencing and produces effects similar to those of face-to-face interactions but less pronounced. This is explained by the video conveying only visual proxemic information compared to the multimodal information available in face-to-face interaction.
[Summary]

57. Vronay, D., M. Smith, et al. (1999). *Alternative interfaces for chat*. 12th annual ACM Symposium on User Interface Software and Technology.19 - 26
[Area] Design
[Abst.] We describe some common problems experienced by users of computer-based text chat, and show how many of these problems relate to the loss of timing-specific information. We suggest that thinking of chat as a real-time streaming media data type, with status and channel indicators, might solve some of these problems. We

then present a number of alternative chat interfaces along with results from user studies comparing and contrasting them both with each other and with the standard chat interface. These studies show some potential, but indicate that more work needs to be done.

[Summary]

58. Erickson, T. and W. A. Kellogg (2000). "Social translucence: An approach to designing systems that support social processes." *ACM Transactions on Computer-Human Interaction* **7**(1): 59-83. Retrieved Febuary 10, 2005, from http://www.pliant.org/personal/Tom_Erickson/st_TOCHI.html.

[Area] Design

[Abst.] We are interested in designing systems that support communication and collaboration among large groups of people over computer networks. We begin by asking what properties of the physical world support graceful human-human communication in face to face situations, and argue that it is possible to design digital systems that support coherent behavior by making participants and their activities visible to one another. We call such systems "socially translucent systems" and suggest that they have three characteristics -- visibility, awareness, and accountability -- which enable people to draw upon their social experience and expertise to structure their interactions with one another. To motivate and focus our ideas we develop a vision of knowledge communities, conversationally-based systems that support the creation, management and re-use of knowledge in a social context. We describe our experience in designing and deploying one layer of functionality for knowledge communities, embodied in a working system called "Babble," and discuss research issues raised by a socially translucent approach to design.

[Summary] The authors, researchers at IBM Research, proposed to create socially translucence systems that have three properties: visibility, awareness, and accountability, to address the digital social blindness. Visibility refers to making socially significant information visible. Awareness refers to letting people aware of the situation, and therefore, bringing social rules in making appropriate decisions. Accountability refers to "I know that you know that I know you are there". By providing such translucent systems, people could get social cues from the environment and people's interaction, which would engage people into appropriate social interaction. To see how a socially translucent system affects people's interaction, they applied those concepts into knowledge management working environment. The prototype they created, called Babble, shows abstract representations of socially salient information, which mainly include member's participation, topics of discussions, social proxy representation of user activity, and the sequential text of the conversation. Although, the Babble system wasn't designed with rich representation of social cues, this work clearly informs the importance to show the activities and social context in facilitating people's communication. Several issues that were not designed in Babble include the balancing between making everything visible and putting privacy above all else, visualizing the conversational structures and strategies for encourage outsiders to take participation into the conversation.

59. Farnham, S., S. U. Kelly, et al. (2004). *Wallop: Designing Social Software for Co-located Social Networks*. Proceedings of the 37th Hawaii International Conference on System Sciences

[Area] Design

[Abst.] Technology is increasingly being incorporated into people's day-to-day social relationships, particularly for people whose friendships occupy the center of their social lives. In the following paper we discuss a co-located social group's tendency to integrate planning and re-experiencing around social events with tools for persistent conversations. Through a questionnaire study we found that emails and mailing lists were used as much as phone conversations to plan social activities, and that said usage was positively correlated with measures of friendship satisfaction, sense of community, and percentage of time spent socializing. In response to our observations, we designed a sharing and communication application, Wallop, to enrich the co-located social group's planning and sharing around social events. Wallop provides both communication and social awareness tools, enabling users to build conversations in the context of shared content and browse their implicit social networks. Initial responses to Wallop from a focus group and limited deployment to test users have been positive.

[Summary]

60. Cadiz, J., G. Venolia, et al. (2002). *Designing and Deploying an Information Awareness Interface*. Proceedings of the 2002 ACM Conference on Computer-Supported Cooperative Work (CSCW'02).314-323

[Area] Design

[Abst.] The concept of awareness has received increasing attention over the past several CSCW conferences. Although many awareness interfaces have been designed and studied, most have been limited deployments of research prototypes. In this paper we describe Sideshow, a peripheral awareness interface that was rapidly adopted by thousands of people in our company. Sideshow provides regularly updated

peripheral awareness of a broad range of information from virtually any accessible web site or database. We discuss Sideshow's design and the experience of refining and redesigning the interface based on feedback from a rapidly expanding user community.

[Summary]

61. Smith, M. A. and A. T. Fiore (2001). *Visualization Components for Persistent Conversations*. Proceedings of CHI'01.136 - 143

[Area] Design

[Abst.] An appropriately designed interface to persistent, threaded conversations could reinforce socially beneficial behavior by prominently featuring how frequently and to what degree each user exhibits such behaviors. Based on the data generated by the Netscan data-mining project [9], we have developed a set of tools for illustrating the structure of discussion threads like those found in Usenet newsgroups and the patterns of participation within the discussions. We describe the benefits and challenges of integrating these tools into a multi-faceted dashboard for navigating and reading discussions in social cyberspaces like Usenet and related interaction media. Visualizations of the structure of online discussions have applications for research into the sociology of online groups as well as possible interface designs for their members.

[Summary] The authors, researchers at Microsoft Research, developed a set of tools for illustrating the structure of discussion threads and the patterns of participation within the discussions based on the data generated by the Netscan data-minding project. The interfaces were designed to feature how frequently and to what degree each user make socially beneficial behaviors, such as helping others, answering questions, or performing other actions that contribute to the community, in order to reinforce such behaviors in persistent and threaded conversation systems. The authors conclude that the diverse facets of online discussion do not integrate easily with each other, and suggest providing multiple ways to view the conversational space in a single dashboard.

62. Ling, K., G. Beenen, et al. (2005). "Using social psychology to motivate contributions to online communities." *Journal of Computer-Mediated Communication* **10**(4): article 20.

[Area] Design

[Abst.] Under-contribution is a problem for many online communities. Social psychology theories of social loafing and goal-setting can lead to mid-level design goals to address this problem. We tested design principles derived from these theories in four field experiments. In experiment 1, members of an online movie recommender community participated in an online discussion group either with others with similar movie tastes or not and were told of conversational topics where they held unique information or not. In experiment 2, members of the movie recommender community were reminded of the uniqueness of their contributions and the benefits that follow from them. In experiment 3, they were reminded of different types of benefits that they or others would gain from rating movies. In experiment 4, they were given a range of individual or group goals for contribution. As predicted by theory, individuals contributed when they were reminded of their uniqueness and when they were given specific and challenging goals. However, other predictions were disconfirmed. For example, in Experiment 4, participants given group goals contributed more than those given individual goals. The paper ends with suggestions and challenges for mining design implications from social science theories.

[Summary]

63. Rashid, A. M., K. Ling, et al. (2006). *Motivating Participation by Displaying the Value of Contribution*. CHI'06

[Area] Design

[Abst.] One of the important challenges faced by designers of online communities is eliciting sufficent contributions from community members. Users in online communities may have difficulty either in finding opportunities to add value, or in understanding the value of their contributions to the community. Various social science theories suggest that showing users different perspectives on the value they add to the community will lead to differing amounts of contribution. The present study investigates a design augmentation for an existing community Web site that could benefit from additional contribution. The augmented interface includes individualized opportunities for contribution and an estimate of the value of each contribution to the community. The value is computed in one of four different ways: (1) value to self; (2) value to a small group the user has affinity with; (3) value to a small group the user does not have affinity with; and (4) value to the entire user community. The study compares the effectiveness of the different notions of value to 160 community members.

[Summary]

64. Dave, K., M. Wattenberg, et al. (2004). *Flash Forums and ForumReader: Navigating a New Kind of Large-scale Online Discussion*. Proc. CSCW'04.232-241

[Area] Design

[Abst.] We describe a popular kind of large, topic-centered, transient discussion, which we term a flash forum. These occur in settings ranging from web-based bulletin boards to corporate intranets, and they display a conversational style distinct from Usenet and other online discussion. Notably, authorship is more diffuse, and threads are less deep and distinct. To help orient users and guide them to areas of interest within flash forums, we designed ForumReader, a tool combining data visualization with automatic topic extraction. We describe lessons learned from deployment to thousands of users in a real-world setting. We also report a laboratory experiment to investigate how interface components affect behavior, comprehension, and information retrieval. The ForumReader interface is well-liked by users, and our results suggest it can lead to new navigation patterns. We also find that, while both visualization and text analytics are helpful individually, combining them may be counterproductive.

[Summary] The authors, researchers at IBM research, design a tool to help orient users and guide users to areas of interest within forums that contain larger, topic-centered, and transient discussions. In such forums, authorship is more diffuse, and threads are less deep and distinct. The authors use data visualization for navigation and with automatic topic extraction technology to give users a multifaceted overview of the conversation. Their design of thumbnail visualization encourages a non-sequential navigation styles. The found that coloring by moderation is as valued as the text view, scrollbar, and search in facilitating navigation. They also found an interaction effects between the visualization and the text analytics, that each features was beneficial to performance, but that the two features together were associated with worse performance. The authors suspected that providing multiple navigational paths may be overwhelming for users, however, further exploration of the reasons was not described. Such a counterproductive effect may be explained by looking at what the conversational cues were provided in visualization and text analytics, and how they help readers understand the content, which will inform my design of tool for visualizing the online conversation.

65. Gergle, D., R. E. Kraut, et al. (2006). *The impact of delayed visual feedback on collaborative performance*. CHI'06.1303 - 1312

[Area] Design

[Abst.] When pairs work together on a physical task, seeing a common workspace benefits their performance and transforms their use of language. Previous results have demonstrated that visual information helps collaborative pairs to understand the current state of their task, ground their conversations, and communicate efficiently. However, collaborative technologies often impinge on the visual information needed to support successful collaboration. One example of this is the introduction of delayed visual feedback in a collaborative environment. We present results from two studies that detail the form of the function that describes the relationship between visual delay and collaborative task performance. The first study precisely demonstrates how a range of visual delays differentially impact performance and illustrates the collaborative strategies employed. The second study describes how parameters of the task, such as the dynamics of the visual environment, reduce the amount of delay that can be tolerated.

[Summary]

66. Churchill, E. F., J. Trevor, et al. (2000). *Anchored conversations: chatting in the context of a document*. Proceedings of the SIGCHI conference on Human factors in computing systems.454-461

[Area] Design

[Abst.] This paper describes an application-independent tool called Anchored Conversations that brings together text-based conversations and documents. The design of Anchored Conversations is based on our observations of the use of documents and text chats in collaborative settings. We observed that chat spaces support work conversations, but they do not allow the close integration of conversations with work documents that can be seen when people are working together face-to-face. Anchored Conversations directly addresses this problem by allowing text chats to be anchored into documents. Anchored Conversations also facilitates document sharing; accepting an invitation to an anchored conversation results in the document being automatically uploaded. In addition, Anchored Conversations provides support for review, catch-up and asynchronous communications through a database. In this paper we describe motivating fieldwork, the design of Anchored Conversations, a scenario of use, and some preliminary results from a user study.

[Summary] This paper describes an application-independent tool called Anchored Conversations that brings together text-based conversations and documents. The design of Anchored Conversations is based on observations of the use of documents and text chats in collaborative settings. They observed that chat spaces support work conversations, but they do not allow the close integration of conversations with work documents that can be seen when people are working together face-to-face. Anchored Conversations directly addresses this problem by allowing text chats to be anchored into documents. Anchored Conversations also facilitates document sharing; accepting an invitation to an anchored conversation results in the document being automatically uploaded. In

addition, Anchored Conversations provides support for review, catch-up and asynchronous communications through a database.

67. Fussell, S. R., L. D. Setlock, et al. (2004). "Gestures Over Video Streams to Support Remote Collaboration on Physical Tasks." *Human-Computer Interaction* **19**: 273-309.

[Area] Design, Method

[Abst.] This article considers tools to support remote gesture in video systems being used to complete collaborative physical tasks—tasks in which two or more individuals work together manipulating three-dimensional objects in the real world. We first discuss the process of conversational grounding during collaborative physical tasks, particularly the role of two types of gestures in the grounding process: pointing gestures, which are used to refer to task objects and locations, and rep-resentational gestures, which are used to represent the form of task objects and the nature of actions to be used with those objects. We then consider ways in which both pointing and representational gestures can be instantiated in systems for remote collaboration on physical tasks.We present the results of two studies that use a "surrogate" approach to remote gesture, in which images are intended to express the meaning of gestures through visible embodiments, rather than direct views of the hands. In Study 1, we compare performance with a cursor-based pointing device that allows remote partners to point to objects in a video feed of the work area to performance side-by-side or with the video system alone. In Study 2, we compare performance with two variations of a pen-based drawing tool that allows for both pointing and representational gestures to performance with video alone. The results suggest that simple surrogate gesture tools can be used to convey gestures from remote sites, but that the tools need to be able to convey representational as well as pointing gestures to be effective. The results further suggest that an automatic erasure function, in which drawings disappear a few seconds after they were created, is more beneficial for collaboration than tools requiring manual erasure. We conclude with a discussion of the theoretical and practical implications of the results, as well as several areas for future research.

[Summary]

68. Walther, J. B. (2001). "The Impacts of Emoticons on Message Interpretation in Computer–Mediated Communication." *Social Science Computer Review* **19**(3): 324-347.

[Area] S&S

[Abst.] moticons are graphic representations of facial expressions that many e–mail users embed in their messages. These symbols are widely known and commonly recognized among computer–mediated communication (CMC) users, and they are described by most observers as substituting for the nonverbal cues that are missing from CMC in comparison to face–to–face communication. Their empirical impacts, however, are undocumented. An experiment sought to determine the effects of three common emoticons on message interpretations. Hypotheses drawn from literature on nonverbal communication reflect several plausible relationships between emoticons and verbal messages. The results indicate that emoticons' contributions were outweighed by verbal content, but a negativity effect appeared such that any negative message aspect—verbal or graphic—shifts message interpretation in the direction of the negative element.

[Summary] The authors found little impact of emoticons in messages that include attitudinally rich verbal statements.

69. Kraut, R. E., D. Gergle, et al. (2002). *The use of visual information in shared visual spaces: informing the development of virtual co-presence*. ACM CSCW'02.31 - 40

[Area] Design

[Abst.] A shared visual workspace is one where multiple people can see the same objects at roughly the same time. We present findings from an experiment investigating the effects of shared visual space on a collaborative puzzle task. We show that having the shared visual space helps collaborators understand the current state of their task and enables them to communicate and ground their conversations efficiently. These processes are associated with faster and better task performance. Delaying the visual update in the space reduces benefits and degrades performance. The shared visual space is more useful when tasks are visually complex or when actors have no simple vocabulary for describing their world. We find evidence for the ways in which participants adapt their discourse processes to their level of shared visual information.

[Summary]

70. Wellman, B. (2004). "The three ages of internet studies: ten, five and zero years ago." *new media & society* **6**(1): 123-129.

[Area] The three ages of internet studies: ten, five and zero years ago

[Abst.]

[Summary]

71. Silver, D. (2000). Looking Backwards, Looking Forward: Cyberculture Studies 1990-2000. *Web.studies: Rewiring Media Studies for the Digital Age*. D. Gauntlett, Oxford University Press**:** 19-30.

[Area] S&S
[Abst.]
[Summary]

72. Lamerichs, J. and H. F. M. T. Molder (2003). "Computer-mediated communication: from a cognitive to a discursive model." *new media & society* **5**(4): 451-473.

[Area] S&S

[Abst.] In this article, we evaluate the ways in which computermediated communication (CMC) has thus far been conceptualized, proposing an alternative approach. It is argued that traditional perspectives ignore participants' everyday understanding of media use and media
characteristics by relying on an individualistic and cognitive framework. The SIDE model, while improving on the definition of what may count as 'social' in CMC, still disregards the way in which identity is constructed and managed in everyday talk and text. To fill this gap, we offer a discursive psychological approach to online interaction. Presented here are the materials from an online discussion forum on depression. It is shown that participants' identities do not so much mirror their inner worlds but are discourse practices in their own right. More specifically, we demonstrate how participants attend to 'contradictory' normative requirements when requesting support, thus performing the kind of identity work
typically obscured in cognitive models.

[Summary]

73. Herring, S. C. (2004). "Slouching toward the ordinary: current trends in computer-mediated communication." *new media & society* **6**(1): 26-36.

[Area] S&S
[Abst.]
[Summary]

74. Joinson, A. N. (2003). Chapter 7: A Framework for Understanding Internet Behavior. *Understanding the Psychology of Internet Behavior (Virtual Worlds, Real Lives)*, Palgrave Macmillan**:** 163-184.

[Area] S&S

[Abst.] Aspects of users (strategic use of the internet, user characteristics and internet use, motives and internet use), media effects (specific and global effects of internet user, perdicted and emergent effects of internet use), the interaction between media effect and the user, implications and application of SMEE (links to other models, internet addiction and SMEE, uninhibited communication, internet use and mental health)

[Summary] Because the interdisciplinary nature of cyberpsychology, the author of this chapter intend to propose an integrated framework that incorporates the many different approaches and epistemologies of the contributing disciplines. It argues that researchers who study people's internet behavior should consider both how human factors (e.g. self-presentation, impression management, etc) influence the internet behavior and how the technology determine psychological outcomes.

On one hand, human factors have influenced how people interact with internet. For example, people strategically select media for their communicative purposes (narrow bandwidth for easy control and increased impression management ability), and they use their chosen media in a motivated manner. The choice of media becomes part of the message itself. It is also reported that people's use of the Internet (amount and type of Internet use, satisfaction, content and styles of communication, etc) differs significantly along the gender because of their different ways of enacting relationships and personality (e.g. extraversion vs. neuroticism, self-conscious, shyness, social anxiety, etc.). People's motives also determine behavior of Internet users. For example, people's self-enhancement, self-protection and self-esteem have been argued to influence user's choice of internet services, and behavior using the service (e.g. lurking). It was argued that a desire to reduce uncertainty about one's sense of self also encourage the interent use becuase it provides a safe environment for the seeking of uncertainty-recuding information. Other psychological motives that could affect user's internet behavior include the need to affiliation, meaning, efficacy. Overall, there is clear evidence that aspects of the user influence their choice of media, the goals of their media use and the satifaction they derive from the media.

On the other hand, the media and technology also shape the way we interact and behave on the Internet. Some specific aspects of a tool could include the level and type of anonymity it provides, whether interaction is synchronous or asynchronous, is interaction context-, voice-, or video-based, does the software provide automatic quoting or emoticons, etc. These specific aspects of the tool used have effects ont eh user' psyhological state as well as

a direct impact on their behavior. It was also argued that many aspects of interaction (e.g. power, norms) are socially constructed through the process of interaction, rather than preset for users to adopt as and when needed.

To incorporate these two di-directional relationships beteen people and media/technology, the author proposed a SEMM (strategic and motivated user, expected and emergent effects) framework to understand how the human affect the behavior, and how the media in turn influence the behavior and human's psychological outcomes, which also affect people's beahvior. It is argued that the impact of the user on media choice, expected outcomes, and the developing interaction is not a 'one-off', but rather that the process involves a cyclical process of changes in goals, strategy and motivation.

Finally, the author explains the links of SMEE framework with other models, namely the model proposed by O'Sullivan that emphasizes the trategic views of media use, SIDE model that has both the technologically determinist and context-dependent effects but the relationship between these two is not well-developed, and hyperpersonal model that relies heavily on asynchronous CMC.

In general, this framework suggestes that the impact of itnernet use on both psychological states and behavior needs to be understood in terms of three key elements: the user, the media, and the ongoing interaction. The psychological and behavioral effects of the meida emerge through the proces of interaction witht eh meida and feed back to the user which then leads to both changes in self-definition, motives and strategy, and eventually to later behaviors both on- and off-line.

75. Gutwin, C., R. Penner, et al. (2004). *Group awareness in distributed software development*. CSCW'04.72 - 81

[Area] S&S

[Abst.] Open-source software development projects are almost always collaborative and distributed. Despite the difficulties imposed by distance, these projects have managed to produce large, complex, and successful systems. However, there is still little known about how open-source teams manage their collaboration. In this paper we look at one aspect of this issue: how distributed developers maintain group awareness. We interviewed developers, read project communication, and looked at project artifacts from three successful open source projects. We found that distributed developers do need to maintain awareness of one another, and that they maintain both a general awareness of the entire team and more detailed knowledge of people that they plan to work with. Although there are several sources of information, this awareness is maintained primarily through text-based communication (mailing lists and chat systems). These textual channels have several characteristics that help to support the maintenance of awareness, as long as developers are committed to reading the lists and to making their project communication public.

[Summary]

76. Fisher, D. and P. Dourish (2004). *Social and Temporal Structures in Everyday Collaboration*. Proceedings of the 2004 ACM Conference on Human Factors in Computing Systems (CHI'04).551-558

[Area] S&S

[Abst.] Everyday work frequently involves coordinating and collaborating with others, but the structure of collaboration is largely invisible to conventional desktop applications. We are exploring ways to support everyday collaboration by allowing applications access to the social, organizational, and temporal settings within which work is conducted. In this paper, we present two generations of systems supporting everyday collaboration, focusing on ways to recover and represent the temporal and social structures of online activity.

[Summary]

77. Ellison, N., Heino, R., & Gibbs, J. (2006). "Managing impressions online: Self-presentation processes in the online dating environment." *Journal of Computer-Mediated Communication* **11**(2): http://jcmc.indiana.edu/vol11/issue2/ellison.html.

[Area] S&S

[Abst.] This study investigates self-presentation strategies among online dating participants, exploring how participants manage their online presentation of self in order to accomplish the goal of finding a romantic partner. Thirty-four individuals active on a large online dating site participated in telephone interviews about their online dating experiences and perceptions. Qualitative data analysis suggests that participants attended to small cues online, mediated the tension between impression management pressures and the desire to present an authentic sense of self through tactics such as creating a profile that reflected their "ideal self," and attempted to establish the veracity of their identity claims. This study provides empirical support for Social Information Processing theory in a naturalistic context while offering insight into the complicated way in which "honesty" is enacted online.

[Summary]

78. Jacobson, D. (1999). "Impression Formation in Cyberspace: Online Expectations and Offline Experiences in Text-based Virtual Communities." *Journal of Computer-mediated Communication* **15**(1).

[Area] S&S

[Abst.] How do people in cyberspace picture one another? More specifically, how do individuals engaged in text-based computer-mediated communication (CMC), with its paucity of visual and auditory cues, form impressions of those with whom they interact? And how do expectations formed online compare with offline experiences? Researchers have begun to answer these questions, drawing primarily on theories of stereotyping. This paper uses prototype theory and related models to extend previous research and to account for discrepancies between online image and offline reality. It draws on interviews with individuals who first met others online and subsequently moved to face-to-face interaction; it also utilizes comparisons between text-based impressions formed online and photographs displayed on web pages.

[Summary]

79. Blood, R. (2004). "How blogging software reshapes the online community." *Communications of the ACM* **47**(12): 53-55.

[Area] S&S

[Abst.]

[Summary]

80. Turner, T. C., M. A. Smith, et al. (2005). "Picturing Usenet: Mapping Computer-mediated collective action." *Journal of Computer -Mediated Communication* **10**(4): article 7. http://jcmc.indiana.edu/vol10/issue4/turner.html (retrievaled on Oct 24, 2006).

[Area] S&S

[Abst.] Usenet is a complex socio-technical phenomenon, containing vast quantities of information. The sheer scope and complexity make it a challenge to understand the many dimensions across which people and communication are interlinked. In this work, we present visualizations of several aspects and scales of Usenet that combine to highlight the range of variation found in newsgroups. We examine variations within hierarchies, newsgroups, authors, and social networks. We find a remarkable diversity, with clear variations that mark starting points for mapping the broad sweep of behavior found in this and other social cyberspaces. Our findings provide the basis for initial recommendations for those cultivating, managing, contributing, or consuming collectively constructed conversational content.

[Summary]

81. Fisher, D., M. Smith, et al. (2006). *You Are Who You Talk To: Detecting Roles in Usenet Newsgroups*. Proceedings of the 39th Hawaii International Conference on System Sciences - 2006

[Area] S&S

[Abst.] Understanding the social roles of the members a group can help to understand the social context of the group. We present a method of applying social network analysis to support the task of characterizing authors in Usenet newsgroups. We compute and visualize networks created by patterns of replies for each author in selected newsgroups and find that second-degree ego-centric networks give us clear distinctions between different types of authors and newsgroups. Results show that newsgroups vary in terms of the populations of participants and the roles that they play. Newsgroups can be characterized by populations that include question and answer newsgroups, conversational newsgroups, social support newsgroups, and flame newsgroups. This approach has applications for both researchers seeking to characterize different types of social cyberspaces as well as participants seeking to distinguish interaction partners and content authors.

[Summary]

82. Grinter, R. E. and M. A. Eldridge (2001). *y do tngrs luv 2 txt msg?* Proceedings of the Seventh European Conference on Computer-Supported Cooperative Work (ECSCW'01).219-238

[Area] S&S

[Abst.] "Text messaging" — using a mobile phone to send a message — has changed how teenagers use wireless phones to communicate and coordinate. While the media reports rapid growth in text messaging, less is known about why teenagers have adopted it. In this paper, we report findings from a study of teenagers' text messaging practices. Specifically, we show that teenagers use text messages to: arrange and adjust times to talk, coordinate with friends and family, and chat. Moreover, we argue that the reasons teenagers find text messaging quick, cheap, and easy to use, are grounded in their social context. Finally, we show that teenagers encounter three problems when text messaging: understanding evolving language, determining intent from content, and addressing messages.

[Summary] This paper studied how people use cellphones to interact with others.

83. Fiore, A. T., S. LeeTiernan, et al. (2002). *Observed Behavior and Perceived Value of Authors in Usenet Newsgroups: Bridging the Gap*. Proc. CHI'02.323 - 330

[Area] S&S

[Abst.] In this paper we describe an evaluation of behavioral descriptors generated from an analysis of a large collection of Usenet newsgroup messages. The metrics describe aspects of newsgroup authors' behavior over time; such information can aid in filtering, sorting, and recommending content from public discussion spaces like newsgroups. To assess the value of a variety of these behavioral descriptors, we compared 22 participants' subjective evaluations of authors whose messages they read to behavioral metrics describing the same authors. We found that many metrics, particularly the longevity and frequency of participation, the number of newsgroups to which authors contribute messages, and the amount they contribute to each thread, correlate highly with readers' subjective evaluations of the authors

[Summary] The authors, researchers at the Microsoft research, analyzed the correlations between the author's behavioral metrics observed in a Usernet newsgroups and the subjective evaluation and reactions of others to author's behaviors. Three major metrics that are found to be highly correlated with readers' subjective evaluations of the authors are the longevity and frequency of participation, the number of newsgroups to which authors contribute messages, and the amount they contribute to each thread. This result can help in filtering, sorting, and recommending valuable content from public discussion space with large amount information with mixed values. They also confirmed the need for subjects to be familiar with authors in order to evaluate them soundly. This work fully explored the usefulness of using quantitative behavioral metrics to measure perceive value of the authors. They doesn't investigate more qualitative behavioral metrics, such as author's projected social position(trust), types of materials in author's post (interests), reader's personal preference(expectation), author's style of writing (formal/informal), types of recursive posting and reply (engagement). Analyzing these qualitative metrics may also help us understand how the social cues were presented in the conversation and perceived by the reader.

84. Joyce, E. and R. E. Kraut (2006). "Predicting continued participation in newsgroups." *Journal of Computer-Mediated Communication* **11**(3): http://jcmc.indiana.edu/vol11/issue3/joyce.html.

[Area] S&S

[Abst.] Turnover in online communities is very high, with most people who initially post a message to an online community never contributing again. In this paper, we test whether the responses that newcomers receive to their first posts influence the extent to which they continue to participate. The data come from initial posts made by 2,777 newcomers to six public newsgroups. We coded the content and valence of the initial post and its first response, if it received one, to see if these factors influenced newcomers' likelihood of posting again. Approximately 61% of newcomers received a reply to their initial post, and those who got a reply were 12% more likely to post to the community again; their probability of posting again increased from 44% to 56%. They were more likely to receive a response if they asked a question or wrote a longer post. Surprisingly, the quality of the response they received—its emotional tone and whether it answered a newcomer's question—did not influence the likelihood of the newcomer's posting again.

[Summary]

85. Erickson, T. and W. A. Kellogg (2004). *Social Proxies*, Bershire Publishing Group, LLC.

[Area] Design

[Abst.]

[Summary] human are social creatures. The physical world is full of socially salient information, and we use such cues to govern our own behavior and coordinate our actions with others. However, the online tools and environment lack such socially salient information. A social proxies is an abstract dynamic graphical representation tht protrays socially salient information about the presence and activities of a group of people participating in an online interaction. It provides online, multiple-user systems with some of the cues so prevalent in the face to face world. The knowledge that activity depicted in the social prxy is visible to all participants makes it 'public.' This mutuality supports people being held accountable for thier actions and underlies the social phenomena. social proxies could enrich the context of online interaction by 1) creating a sense of place, or a feeling for the state of the interaction, and 2) providing information that can indicate opportune moments for interaction.

86. Pinch, T. J. and W. E. Bijker (1989). The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other. *The Social Construction of Technological Systems:*

New Directions in the Sociology and History of Technology. W. E. Bijker, T. P. Hughes and T. J. Pinch, The MIT Press; Reprint edition (March 6, 1989)**:** 17-50.

[Area] S&S
[Abst.]
[Summary]

87. Jones, S. G. (1994). Understanding Community in the Information Age. *CyberSociety: Computer-Mediated Communication and Community*. S. G. Jones, Sage**:** 10-35.

[Area] S&S
[Abst.]
[Summary]

88. Wellman, B. (2005). "Community: from neighborhood to network." *Communications of the ACM* **48**(10): 53 - 55.

[Area] S&S
[Abst.]
[Summary]