Syllabus
Human-Computer Interaction (LIS 243)

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Winter 1996 / Wed 2-5 p.m.
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Office Hours: Th 1-3 p.m. or by appointment

Course Description

In this seminar the social, behavioral, and design issues associated with human-computer interaction (HCI) will be considered. Discussions will focus on the nature of human understanding and communication using computers; small group communication and the role of computers as media to facilitate group process; and the various social contexts of computer use, especially the workplace. In addition, three particularly important (and commonly-experienced) instances of HCI will be examined: computer-mediated communication (CMC), information retrieval (IR) systems, and computer-supported cooperative work (CSCW). Readings will be drawn from interdisciplinary sources, including communication research, software engineering, social psychology, library and information science, and organizational research.

Goals and Objectives

The main goal of the course is to familiarize students with the principles and research issues related to HCI. The course also has several objectives. As a result of their participation, all students in the seminar should be able to:

1. Identify the major concepts and findings of the current literature on HCI, including important research contributions and the questions, theories, and researchers associated with each;

2. Articulate their own particular interests in the context of these main research contributions;

3. Critique human-computer (and human computer-mediated) interaction processes and system interfaces in terms of the research on HCI; and

4. (a, for MLIS students) Propose system design features which might facilitate system use, based on their understanding of HCI; and (b, for Ph.D. students) propose simple hypotheses or research questions relevant to HCI and propose tentative research projects/plans that might answer those hypotheses/questions.

Course Requirements

Readings/Discussions. Because the course will be taught in a mixed lecture/seminar form, students will be expected to make cogent and prepared contributions to class discussions. Readings are listed below under "Weekly Topics and Readings." Required readings will be available as a reader from Westwood Copies. In addition, there is one required text for the class, which is available at the ASUCLA Bookstore:

Winograd, T. and Flores, F. (1987). Understanding Computers and Cognition: A New Foundation for Design. Reading, MA: Addison-Wesley.

Assignments. Students will be responsible for different types of written assignments, depending on their degree program:

> FOR MLIS STUDENTS: Students will write two papers. Each will be a description and critique of a CMC and an IR system interface, respectively, in terms of HCI principles presented in class.
>
> FOR PhD STUDENTS: Students will write a research design paper in which they will identify a research question or hypothesis relevant to HCI based on a system critique, and formulate a research design that would adequately address that question.

More detailed information about the paper assignments will be discussed in class.

Grading Formula. Grading for the course will be based on the following formula: Class discussion, 40%; for MLIS students, the CMC and IR papers will be 30% each; for Ph.D. students, the draft of the term paper (due at approximately midterm) will account for 30% of the grade, with the remaining 30% based on the final version of the paper.

Weekly Topics and Readings

The topics for each week of the course are listed below, along with required and suggested readings for each topic. STUDENTS ARE REQUIRED TO COME TO CLASS HAVING READ MATERIALS ASSIGNED FOR THAT DAY.

January 10 Can We "Interact" with Machines?

Winograd & Flores
Chapter 1, "Introduction," pp. 3-13.
Chapter 2, "The rationalistic tradition," pp. 14-26.
Chapter 3, "Understanding and being," pp. 27-37.

Suchman, L. (1990). What is human-machine interaction? In S.P. Robertson, W. Zachary, and J.B. Black (Eds.), Cognition, computing and cooperation (pp. 25-55). Norwood, NJ: Ablex.

Lyman, P. (1995). Is using a computer like driving a car, reading a book, or solving a problem? The computer as machine, text, and culture. In M.A. Shields (Ed.), Work and technology in higher education: The social construction of academic computing (pp. 19-36). Hillsdale, NJ: Lawrence Erlbaum Associates.

January 17 Individuals and HCI, part I: "Users"

REQUIRED:

Winograd & Flores
Chapter 4, "Cognition as a biological phenomenon," pp. 38-53.
Chapter 5, "Language, listening, and commitment," pp. 54-69.
Chapter 6, "Towards a new orientation," pp. 70-79.
Chapter 8, "Computation and intelligence," pp. 93-106.

Gergen, K. (1991). The saturated self: Dilemmas of identity in conemporary life. New York: Basic Books.
Chapter 1, "The self under siege," pp. 1-17.
Chapter 3, "Social saturation and the populated self," pp. 48-80.

Mack, R. (1990). Understanding and learning text-editing skills: Observations on the role of new user expectations. In S.P. Robertson, W. Zachary, and J.B. Black (Eds.), Cognition, computing and cooperation (pp. 304-337). Norwood, NJ: Ablex.

Shneiderman, B. (1992). Designing the user interface: Strategies for effective human-computer interaction (2nd ed.). Reading, MA: Addison-Wesley.
Chapter 2, "Theories, principles, and guidelines," pp. 51-96.

Turkle, S. (1984). The second self: Computers and the human spirit. New York, NY: Simon & Schuster.
Chapter 5, "Personal computers with personal meanings," pp. 165-195.

January 24 Individuals and HCI, part II: Programmers

REQUIRED:

Winograd & Flores Chapter 7, "Computers and representation, " pp. 83-92.
Chapter 9, "Understanding language," pp. 107-124.

Turkle, S. (1980). Computer as Rorschach. Society/Transaction, January/Feburary, 15-24.

Turkle, S. (1984). The second self: Computers and the human spirit. New York, NY: Simon & Schuster.
Introduction, "The evocative object," pp. 11-25.
Chapter 6, "Hackers: Loving the machine for itself," pp. 196-238.

Smith, E.T. (1995). How to write a bug-free computer program. Unpublished manuscript.
"How to become a computer programmer," pp. 4-12.
"Programming myth: Anybody can program computers," pp. 13-19.
"Programming myth: My code is better than your code," pp. 32-34.
"Programming myth: My code is all finished," pp. 35-36.

January 31 Groups and HCI, part I

REQUIRED:

Winograd & Flores Chapter 11, "Management and conversation," pp. 143-162.

Gibbs, R.W. and Mueller, R.A.G. (1990). Conversation as coordinated, cooperative interaction. In S.P. Robertson, W. Zachary, and J.B. Black (Eds.), Cognition, computing and cooperation (pp. 95-114). Norwood, NJ: Ablex.

February 7 Groups and HCI, part II

REQUIRED:

Kraut, R.E., Galegher, J., and Egido, C. (1988). Relationships and tasks in scientific research collaborations. Human-Computer Interaction, 3, 31-58.

Nyce, J.M. and Bader, G. (1995). To move away from meaning: Collaboration, consensus, and work in a hypermedia project. In M.A. Shields (Ed.), Work and technology in higher education: The social construction of academic computing (pp. 131-139). Hillsdale, NJ: Lawrence Erlbaum Associates.

Star, S.L. and Ruhleder, K. (1994). Steps toward an ecology of infrastructure: Complex problems in design and access for large-scale collaborative systems. In R. Furuta and C. Neuwirth (Eds.), CSCW '94: Proceedings of the Conference on Computer Supported Cooperative Work, October 22-26, 1994, Chapel Hill, NC, pp. 253-264.

February 14 Social/Cultural Contexts of HCI: Work, Home, Education

REQUIRED:

Sproull, L.A., Kiesler, S., and Zubrow, D. (1984). Encountering an alien culture. Journal of Social Issues, 40(3), 31-48.

Beniger, J.R. (1990). Conceptualizing information technology as organization, and vice versa. In J. Fulk and C. Steinfield (Eds.). Organizations and communication technology (pp. 29-45). Newbury Park, CA: Sage.

Katzer, J. and Fletcher, P.T. (1992). The information environment of managers. Annual Review of Information Science and Technology, 27, 173-226.

Kling, R. (1991). Computerization and social transformations. Science, Technology & Human Values, 16(3), summer, 342-367.

Lievrouw, L.A. and Finn, T.A. (1995). New information technologies and informality: Comparing organizational information flows using the CSM. International Journal of Technology Management, forthcoming.

Turkle, S. (1995). Paradoxical reactions and powerful ideas: Educational computing in a department of physics. In M.A. Shields (Ed.), Work and technology in higher education: The social construction of academic computing (pp. 37-64). Hillsdale, NJ: Lawrence Erlbaum Associates.

February 21 Computer-Mediated Communication (CMC)

REQUIRED:

Kiesler, S., Siegel, J., and McGuire, T. (1984). Social psychological aspects of computer-mediated communication. American Psychologist, 39(10), 1123-1134.

Lea, M. (1991). Rationalist assumptions in cross-media comparisons of computer-mediated communication. Behaviour & Information Technology, 10(2), 153-172.

Rice, R.E. and Love, G. (1987). Electronic emotion. Communication Research, 14(1), February, 85-108.

Sproull, L.S., and Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. Management Science, 32(11), 1492-1512.

Walther, J.B. and Burgoon, J.K. (1992). Relational communication in computer mediated interaction. Human Communication Research, 19, 50-88.

Walther, J.B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. Communication Research, 19, 553-574.

February 28 Information Retrieval (IR) Systems

REQUIRED:

Bates, M.J. (1994). Design of databases and other information resources for humanities scholars: The Getty online searching project report no. 4. Online & CDROM Review, 18(6), 331-340.

Belkin, N.J., Marchetti, P.G., and Cool, C. (1993). Braque: Design of an interface to support user interaction in information retrieval. Information Processing & Management, 29(3), 325-344.

Borgman, C. (1986). Why are online catalogs hard to use? Lessons learned from studies of information retrieval systems. Journal of the American Society for Information Science, 37(6), 387-400.

Borgman, C.L. (1989). All users of information retrieval systems are not created equal: An exploration into individual differences. Information Processing & Management, 25(3), 237-251.

March 6 Computer-Supported Cooperative Work (CSCW)

REQUIRED:

Robertson, S.P. and Zachary, W.W. (1990). Conclusion: outlines of a field of cooperative systems. In S.P. Robertson, W. Zachary, and J.B. Black (Eds.), Cognition, computing and cooperation (pp. 399-414). Norwood, NJ: Ablex.

Olson, J.S., Card, S.K., Landauer, T.K., Olson, G.M., Malone, T.P., and Leggett, J. (1993). Computer-supported cooperative work: Research issues for the '90s. Behaviour & Information Technology, 12(2), 115-129.

Dix, A., Finlay, J., Abowd, G., and Beale, R. (1993). Human-computer interaction. New York, NY: Prentice-Hall.
Chapter 14, "CSCW issues and theory," pp. 469-414.

Galegher, J. and Kraut, R.E. (1990). Technology for intellectual teamwork: Perspectives on research and design. In J. Galegher, R.E. Kraut, and C. Egido (Eds.), Intellectual teamwork: Social and technological foundations of cooperative work (pp. 1-20). Hillsdale, NJ: Lawrence Erlbaum Associates.

March 13 Social Impacts of Computing: Directions

REQUIRED:

Winograd & Flores Chapter 10, "Current directions in artificial intelligence," pp. 125-142.
Chapter 12, "Using computers: A direction for design," pp. 163-180.

Shneiderman, B. (1992). Designing the user interface: Strategies for effective human-computer interaction (2nd ed.). Reading, MA: Addison-Wesley.
Afterword, "Social and individual impact of user interfaces," pp. 535-550.

Graves, W. III (1995). Ideologies of computerization. In M.A. Shields (Ed.), Work and technology in higher education: The social construction of academic computing (pp. 65-87). Hillsdale, NJ: Lawrence Erlbaum Associates.