Introduction

Communication design is a cyclical process of message creation, reproduction, circulation (how messages move through culture), and reception by audiences (how messages are interpreted and assimilated). Embedded in this overly simple definition are complex issues related to the impact of design on society and culture, as well as the impact of society and culture on design; the cognitive issues involved when people interact with visual, spatial and temporal representations; and the social, cultural and cognitive impact of digital technologies.

The typical undergraduate graphic design program in the U.S. focuses instruction primarily at the front end of this process: creating and reproducing visual messages. This is consistent with the evolution of our discipline from trades, such as typesetting and printing, and with what is currently demanded by most entry-level design positions. While issues of circulation and reception are discussed at the undergraduate level, they usually enter the student's consciousness through faculty-defined project briefs and make use of information in current design literature. Further, graphic design programs are usually in schools or departments of art, which place further emphasis on the creative aspects of practice and encourage self-reflective criteria for the evaluation of design objects. Of course, there are exceptions to this description of undergraduate study, but if we are really honest in our appraisal of current curricula, we admit that the dominant model for most baccalaureate programs pays disproportionately less attention to the issues of circulation and reception than to those of creation and reproduction.

Master's level curricula in graphic design adopt several perspectives. Some programs serve as finishing schools for the refinement of general skills learned at the undergraduate level or as a compensation for weak undergraduate preparation. In these programs, student attention is focused on the portfolio and creative problem solving that replicates design-office practice. In many cases, students in these programs take the same courses as undergraduates.

Other programs specialize study in one aspect of design practice or take a particular philosophical stance toward the discipline. These programs tend to narrow the range of creation and reproduction concerns and center student projects around generalized definitions of circulation and reception. Culture, for example, is viewed broadly in terms of ethnicity or gender and rarely in terms of class or other shared life experiences. And such cultural/social content is frequently the *topic* about which students design, not the audience or setting through which solutions are interpreted and judged.

The master's and doctoral programs at North Carolina State University attempt to build a research culture focused on the issues of circulation and reception. In the Master of Graphic Design program, information is presented, discussed and debated in seminars that focus on three critical frameworks. *Graphic Design as Cultural Artifact* exposes students to the work and writings of sociologists, anthropologists, cultural critics and philosophers in order to study graphic design from new perspectives. Students encounter the literature of cognitive science, linguistics and social psychology, and explore theories of representation in the

seminar on *Graphic Design as Cognitive Artifact.* The *New Information Environments* seminar draws on work from media studies and techno-science in order to reflect critically on the impact of digital media on social patterns. These seminars are taught by resident faculty and by visitors, including Andrew Blauvelt, Anne Burdick, Shelley Evenson, Piotr Szyhalski, Jan van Toorn and Rob Wittig.

The information from these seminars is directly related to the making activities of a corresponding studio, where students propose original projects that put critical theories into practice and transform ideas into visible form for speculation. Students explore a wide range of media in projects while constructing a body of work that demonstrates their ability to pose questions, propose responses and critically assess their own work and the work of others. They are directly responsible for the content of seminar readings in these projects, so that all students learn to respond critically to their work.

The PhD in Design with a concentration in Information Design was launched in fall 1999 as the second doctoral program in the country. While doctoral students take the master's seminars, their research emphasis is on building new knowledge and casts a critical eye on practices within and outside the design professions. For example, a current dissertation project challenges the popular notion of "user-centered" design as mostly client-centered, designed to identify user behavior and attitudes within an existing inventory of expectation. She is developing and evaluating methods she believes are "emancipatory," that allow audiences to define key concepts in their own visual terms, then are handed off to a design team in place of written reports. Her research is with teenage women at high risk for HIV, and her study shows that prevention strategies should use images related to a women's notion of romance, not to good health. Another doctoral project is focused on the degree to which current computer experiences shape the cognitive patterns of users.

The purpose of teaching these critical frameworks is to challenge the current demographics-driven view of audiences and contexts in the circulation and reception of visual messages. While the master's program seeks researchable questions upon which students can speculate through writing and making, the doctoral program identifies research paradigms that yield generalizable information about the complex nature of audiences and visual communication in the information age.

Sample course

The following is a summary of content and readings from one of the three seminars.

Graphic Design as Cognitive Artifact

- Making a case for cognitive studies in design
- What can we learn about our perspectives from a history of communication models?
- What do we mean by "audience"?

Representation and types of cognition
Stuart Hall, *Representation*. London: Sage Publications, 1997.

Donald Norman, *Things That Make Us Smart*. New York: Addison-Wesley Publishing, 1993.

Defining audiences by cognitive style

Howard Gardner, *Multiple Intelligences: The Theory in Practice.* New York: Basic Books, 1993.
Robert Ennis, "A Taxonomy of Critical Thinking Dispositions and Abilities," *Teaching Thinking Skills*, Robert Stermberg, ed. New York: WH Freeman and Company, 1987.
Bernice McCarthy, *The 4MAT System.* Barrington, IL: EXCEL, Inc., 1987.
Edward and Monika Lumsdaine, *Creative Problem Solving*. New York: McGraw-Hill, Inc. 1995. (This book summarizes the work of Ned Hermann, David Kolb and Bernice McCarthy.)

Assignment: Describe four approaches to presenting the same content that respond to differences in learning preference. Describe the qualities of representations you would use and why.

Categorization and schema

Martha Augustinos and Iain Walker, *Social Cognition: An Integrated Introduction.* London: Sage Publications, 1995.
George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind.* Chicago: University of Chicago Press, 1980.

Assignment: Based on Rosch's work on prototypes, collect images that represent members of a category and arrange them on a continuum with the center being the prototype (best example of the category) and others being members but less prototypical. Be prepared to discuss consensus of meaning and levels of abstraction/metaphor in these images.

Schema and metaphor

Christopher Alexander, *Timeless Way of Building and Pattern Language.* New York Oxford University Press, 1979 and 1977.
Jerone Bruner, *Acts of Meaning*. Cambridge: Harvard University Press, 1990.
George Lakoff and Mark Johnson, *Metaphors We Live By.* Chicago: University of Chicago Press, 1980.
Kevin Lynch, *Image of the City*. Boston: MIT Press, 1960.

Assignment: Using patterns from Alexander's work or the cognitive environmental map of Lynch (i.e., intimacy gradient or main entrance), describe how environmental patterns/maps might be translated in the interface or information architecture of an interactive program.

Mental imagery

Stephen Kosslyn, *Image and Brain.* Cambridge, MIT Press, 1999.

Motivation and flow

Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience.* New York: Harper and Row Publishers, 1990.
Edward Deci, *Why We Do What We Do.* New York: Putnam's Sons, 1995.

Thomas W. Malone, "A Taxonomy of Intrinsic Motivation," *Aptitude, Learning, and Instruction.* Richard E. Snow, ed. Volume 3, 1987.

Technological affordances

Tor Norrentranders, *The User Illusion.* New York: The Penguin Group, 1991.

Donald Norman, *Things That Make Us Smart.* New York: Addison-Wesley Publishing Company, 1993.

Setting a Computer Science Research Agenda, National Science Foundation and Georgia Institute of Technology, 1995.

Biographical note

Meredith Davis is a professor and the acting department chair of the graphic design department at North Carolina State University. Her research focuses on the relationships among design, cognitive theory and learning styles. She is a frequent contributor to design publications such as *I.D Magazine* and *Design Management Journal,* and serves on the boards of directors or as a consultant to the American Center for Design, the Graphic Design Education Association, AIGA and the NEA. She is the editor of *Statements* and is on the editorial board of *Design Issues*. Her research has been funded by the Michigan Council for the Arts, Tennessee Arts Commission, Virginia Foundation for the Humanities, the North Carolina Arts Council and the NEA. She is instrumental in the development and acceptance of an accreditation process for graphic design programs in the U.S.