Visual Literacy

By Peter Felten

The problem of the twenty-first century is the problem of the image,” according to cultural theorist W.J.T. Mitchell (1995). The centuries-long domination of texts and words in culture, particularly Western culture, has come to an end. The new “pictorial turn” means that images no longer exist primarily to entertain and illustrate. Rather they are becoming central to communication and meaning-making.

Mitchell wrote about a culture saturated with images in print, television, film, and public spaces. He did not fully anticipate how, and how quickly, evolving technologies would transform our visual environment. The camera, for example, was not so long ago a specialized device that, except in hands of experts, produced low-quality pictures seen by few people. Now digital cameras are just another component in many electronic devices, and images are created to be uploaded rather than printed. The four-year old photo-sharing Web site Flickr includes more than two billion images, and in just one recent month (January 2008), more than 79 million viewers watched 3 billion videos on the three-year-old site YouTube.

This visual explosion is not only a popular-culture phenomenon. Vast scholarly archives—including the ARTstor Digital Library (www.artstor.org), NASA’s Visible Earth collection (visibleearth.nasa.gov), and the American Memory site at the Library of Congress (memory.loc.gov)—make high-quality visual materials available to students, teachers, and researchers everywhere.

Our visual, screen-based world is the natural environment for many of today’s college students. Our technolog-...
hosted the first national conference on the topic. This group soon evolved into the International Visual Literacy Association (www.ivla.org), which hosts an annual conference and sponsors a Web portal (www.ivla.org/portal/intro) that provides links to relevant research, teaching materials, publications, collections, and other resources.

The connection between visual literacy and emerging technologies persists. EDUCAUSE (www.educause.edu/), a leading higher education association focused on technology, has made visual literacy an important part of its agenda. Susan E. Metros and Kristina Woolsey, writing in the EDUCAUSE Review (2006), offer a succinct argument for why visual literacy should be “an institutional imperative.” Another international consortium of academics and technologists, the New Media Consortium (www.nmc.org), has drawn on the scholarship of Kress, Gee, and others to produce an extended argument that the development of multimodal literacy is now “A Global Imperative” for higher education (www.nmc.org/pdf/Global_Imperative.pdf). The Horizon Report, produced annually by EDUCAUSE and the New Media Consortium, anticipates how emerging technologies will affect higher education. As in past years, the 2008 report focuses on how Web 2.0 tools for video, data visualization, and multimedia “mash-ups” will require “formal instruction in information, visual, and technological literacy.”

The Cambridge Handbook of Multimedia Learning (2005), edited by Richard E. Mayer, summarizes the educationally relevant research on how people learn in multimodal environments; although the volume does not focus on visual literacy per se, it is an essential resource. For example, Mayer’s chapter on the “Cognitive Theory of Multimedia Learning” clearly explains both the science and the implications of “the human information processes system [that] includes dual channels for visual/pictorial and auditory/verbal processing” (p. 31).

For a theoretical overview of the state of the field, James Elkins’ has edited a volume, Visual Literacy (2007), that brings together major thinkers to consider what the concept means in diverse contexts around the globe and across the disciplines. The volume focuses primarily on cultural studies, but perceives a line drawing of a cube to have three dimensions; our eyes project depth onto a flat surface by assembling a familiar shape from a two-dimensional drawing on a sheet of paper. Proponents of visual literacy contend that if the physical act of seeing involves active construction, then the intellectual act of interpreting what is seen must require a critical viewer.

The study of the physiological and cognitive systems involved in visual perception is one of the burgeoning areas in neuroscience. Dale Purves and R. Beau Lotto (2003) offer an accessible peek into this vast field in Why We See What We Do: An Empirical Theory of Vision. Scientists will continue to debate Purves and Lotto’s thesis that the visual system generates a “statistical reflection of visual history” rather than an accurate representation of the physical world, but since no generally accepted framework for understanding the visual system exists, the clarity and comprehensiveness of Purves and Lotto’s book make it valuable to those outside the field.

Echo Objects: The Cognitive Work of Images, by Barbara Maria Stafford (2007), takes a different view into the science of sight. Stafford, an art historian, has studied neuroscience deeply. Echo Objects makes the compelling, if jargon-heavy, argument that since thinking is inextricably linked to images, understanding human cognition requires the integration of science and art.

**Visual Design**

Just as writing is essential to textual literacy, the capacity to manipulate and make meaning with images is a core component of visual literacy. Technological change has made it increasingly possible for ordinary people, not just professionals, to become visual designers. Indeed, editing with a particular graphics program has become so common as to create a new verb, “to photoshop,” that means to digitally alter an image. Johanna Drucker and Emily McVarish’s Graphic Design History: A Critical Guide (2008), a widely used college text,
is an excellent introduction to both the basic principles and the historical evolution of visual design.

Edward Tufte, a professor emeritus at Yale, has developed a large following for his elegant, practical, and pointed views on the visual display of quantitative data. His workshops and books, including *The Visual Display of Quantitative Information* (2nd ed., 2001), should appeal most to professionals in business, engineering and the sciences. Tufte’s most recent volume, *Beautiful Evidence* (2006), includes a chapter based on his influential article, “The Cognitive Style of PowerPoint,” that contends that “PowerPoint, compared to other presentation tools, reduces the analytical quality of serious presentations of evidence” (p. 157).

Despite the harsh critique, many academics rely on PowerPoint and other software to create, manipulate, and present visuals. Many campuses and technology groups (such as EDU-CAUSE) offer or broker training in these technologies. For example, the University of Minnesota’s Center for Teaching and Learning hosts a free online tutorial about “Active Learning with PowerPoint” (www1.umn.edu/ohr/teachlearn/tutorials/powerpoint). Lynda (www.lynda.com) is a corporation with an excellent reputation for online tutorials on the tools and techniques commonly used for visual design.

**TEACHING VISUAL LITERACY**

Schools have traditionally placed primary emphasis on textual literacy. Our pedagogy and academic training often focus on words and texts as the source of knowledge. As Carmen Luke (2003) explains in a provocative article on pedagogy and multimodality, the classroom is perhaps the only place where today’s students are not “blending, mixing, and matching knowledge drawn from diverse textual sources and communication media” (p. 398).

Although a vast literature exists on teaching visual literacy in pre-collegiate settings, relevant higher education literature is only now emerging. Many of the leading books on pedagogy in higher education make at most a passing reference to visual-literacy considerations, in effect treating images as mere illustrations and ignoring the myriad of ways people make meaning by combining visuals and texts. One exception is James E. Zull’s *The Art of Changing the Brain* (2002). Zull draws on “the biology of learning” to argue that faculty should make “extensive use of images to help people learn,” both by teaching with visuals and by requiring students to use various visual forms to represent what they know.

Models for doing this recently have begun appearing in many disciplines, building in part on new visualization technologies being developed as research tools. Perhaps the clearest example of this is the Spatial Perspectives on Analysis for Curriculum Enhancement (SPACE) program. Drawing on advances in geographic information systems and spatial analysis tools, SPACE’s web site (www.csiss.org/space) offers an array of materials to help college faculty teach spatial thinking in the social and environmental sciences, including both “classics” like V.O. Key’s 1949 work on mapping of southern politics and emerging tools like “virtual globes.”

In the natural sciences, Nobel laureate Carl Wieman (2007) argues that a range of visual forms, including figures and simulations made possible by new technologies, are essential to effective scientific education. Jo Handelsman, Sarah Miller, and Christine Pfund’s *Scientific Teaching* (2006) explains how using a visual frameworks and “mini-maps” can help students not only learn content in a biology course but also better understand how scientists think and how the scientific process works.

In history, Michael Coventry and colleagues from the Visible Knowledge Project (crossroads.georgetown.edu/vkp) recently presented, in the *Journal of American History* (2006), five case studies of faculty using new visual approaches to teach historical content and thinking skills. In education and psychology, Elizabeth Thomas, Nancy Place, and Cinnamon Hillyard published a pair of articles in the journal *College Teaching* (2008) that outline and assess several approaches to using “visual images in the college classroom to promote students’ capacities and skills.”

Faculty in composition and cultural studies have produced the deepest literature on the pedagogy of visual literacy in higher education. Lynn Z. Bloom, Donald A. Daiker, and Edward M. White’s 2003 *Composition Studies in the New Millennium* includes several chapters, both provocative and practical, on visual literacy and the teaching of college writing. Brian Golfarb’s *Visual Pedagogies* (2002) blends critical theory and concrete examples to show the potential of students as producers of visual and multimodal academic work. In *The Rhetoric of Cool: Composition Studies and New Media* (2006), Jeff Rice argues for a new understanding of writing as inherently net-
Resource Box I

PUBLICATIONS


Resource Box II

WEB SITES

- Active Learning with PowerPoint, Center for Teaching and Learning, University of Minnesota: www1.umn.edu/ohr/teachlearn/tutorials/powerpoint
- American Memory, Library of Congress: memory.loc.gov
- ARTstor Digital Library: www.artstor.org
- EDUCAUSE: www.educause.edu
- Flickr: www.flickr.com
- International Visual Literacy Association: www.ivla.org
- Lynda: www.lynda.com
- New Media Consortium: www.nmc.org
- Spatial Perspectives on Analysis for Curriculum Enhancement: www.csiss.org/space
- Visible Earth, National Aeronautics and Space Administration: visibleearth.nasa.gov
- Visible Knowledge Project: crossroads.georgetown.edu/vkp
- YouTube: www.youtube.com
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