

explorations



Visual Literacy in Higher Education

by Ron Bleed
Maricopa Community Colleges

ELI Explorations

August 2005

Abstract

Today's environment is highly visual—television, Web sites, video, and images dominate our lives—and visuals created with new technologies are changing what it means to be literate. The literacy of the 21st century will increasingly rely not only on text and words but also on digital images and sounds. This paper explores the emergence of visual literacy, which will become as important as textual literacy for learning, and the need to integrate it into the curriculum at colleges and universities.

ELI Explorations 1: 2005

The EDUCAUSE Learning Initiative (ELI) is a community of higher education institutions and organizations committed to advancing learning through IT innovation. To achieve this mission, ELI focuses on learners, learning principles and practices, and learning technologies. We believe that using IT to improve learning requires a solid understanding of learners and how they learn. It also requires effective practices enabled by learning technologies. *Explorations* is designed to catalyze the investigation of emerging issues and invite comment from the ELI community. We hope the ideas in this paper will stimulate further inquiry.

Introduction

I am a “newbie” to the field of visual literacy,¹ which depends on technology, requires artistic expression, and encourages storytelling. I am passionate about the importance of visual literacy² and its value to 21st-century students. When asked what students need to be learning that they’re not, George Lucas replied that they need to understand a new language of expression.³ In other words, they need visual literacy.

Whether petroglyphs or modern video technology displays, the ability to record events and ideas is a foundation of civilization. The ancient Native Americans told stories with rock art, or petroglyphs. Over time, however, the rock art changed to words and text. Fast-forward to today and another form of communication is overtaking print and text. The literacy of the 21st century will consist of digital images (both static and moving) and sounds, as well as text and words. Many of us are conditioned by new technologies to being very visual in our day-to-day living and learning. We are bombarded daily with images and spend much of our disposable income on television, movies, photography, video games, and art. Popular holiday gifts in 2004 were digital cameras and camcorders, iPods, and high-definition televisions.

Visuals created with new technologies are changing what it means to be literate. In the 21st century, the ability to interpret and create visual, digital, and audio media is a form of literacy as basic as reading and writing text. Visual literacy is required of us as much as textual literacy. Most academic programs, however, are centered on reading and writing words. We must expand our concept of literacy to match the reality of today.

A shift to a new form of literacy is required for three reasons. The first is the changing nature of the younger generation. The second is the tipping point—that dramatic moment when something unique becomes common—in the adoption of technology that supports the 21st-century skill sets. Third, human reaction to the proliferation of technology creates a high-touch reaction that reintroduces the desire to create artistic work, tell stories, and combine human interactions.

21st-Century Students

The proliferation of media has impacted the lives of younger people. Consider the following:

- In the United States, the average teenager spends 22,000 hours watching television by the time he or she graduates from high school.⁴
- The vocabulary of the average 14-year-old dropped from 25,000 words in 1950 to only 10,000 words in 1999.⁵
- Children age zero to six spend as much time playing with TV, computers, and video games as outside. One in four children under age two has a TV in the bedroom. Video-game play has now surpassed both newspaper and magazine reading among young males and is at parity with print media consumption among all Americans age 12 to 64.⁶
- By age 21, the average student will have spent 10,000 hours on video games; sent or received 200,000 e-mails; talked for 10,000 hours on a cell phone; and read for under 5,000 hours.⁷

New Learners, Old Methods

The entertainment industry has tremendous influence over children's minds. Through television, video games, and movies, children are visually stimulated and learn from the new media. What they are learning, however, is of major concern. The entertainment industry has financial motivation rather than a concern for a greater good in learning.

Although a new-generation learner exists, educational institutions have not adjusted to this change. Bill Gates proclaimed that our schools "cannot teach our kids what they need to know today."⁸ Teacher attitudes and training, generational differences, funding, support for technical infrastructure, and local politics can hinder any transformation of the educational enterprise:

It is time to embrace visual literacy. We judge children on their math and verbal skills, but our culture is so visual that people really get their information from images. The entire education system needs to be revamped to emphasize visual education, from kindergarten to college. You can learn the word "spoon" but to look at a spoon communicates so much more and more directly. By looking at the spoon we can read the history of eating, utensils, materials, civilization, culture, habits. Visual information can be easily absorbed, more easily assimilated than rote learning of facts and figures, to quantify through visual means.⁹

IQ scores are on the rise because of smaller families, more leisure time, the explosion of media, and the interactivity of the new media, all of which improve problem-solving skills. Video games make people rely on problem-solving skills to reach defined goals. In a well-designed game, people learn new skills and see the consequences of their knowledge, or their ignorance, as their scores climb or fall. Assessment is a cinch—every keystroke and high score is recordable:

Despite concerns about the dumbing-down of society, the failing schools, the garbage on TV, the decline in reading, the overall population was getting smarter.... Our brains are getting better at problem-solving. Mastering visual puzzles is the whole point of the exercise—whether it's the spatial geometry of *Tetris*, the engineering riddles of *Myst*, or the urban mapping of *Grand Theft Auto*.¹⁰

The Tipping Point

The *tipping point*¹¹ is that dramatic moment when something unique becomes common; the term is commonly applied to the acceptance of new technologies. The term was popularized and applied to daily life by Malcolm Gladwell's book *The Tipping Point: How Little Things Can Make a Big Difference*.¹²

The year 2004 was the tipping point for the digital video and music in the consumer market. What tipping point is next? Statistics and predictions on the ZDNet Web site¹³ provide clues:

- 12.6 million U.S. households have a high-definition TV in 2005; 45 million will by 2009.
- \$33 billion of DVD content was produced in 2004; \$76.5 billion will be produced in 2009.
- 52% of Americans will own a digital camera by the end of 2005.
- 150 million camera phones were sold worldwide in 2004, with 280 million projected in 2005.
- 12.3 million U.S. households will listen to podcasts by 2010.

- PCs are used in U.S. households to play games (57%); listen to music (51%); burn CDs or DVDs (48%); edit digital photos (45%); play DVDs (29%); and create photo slide shows (21%).
- 31% of kids 8 to 18 have a PC in their room; 54% of children's bedrooms had a VCR or DVD player. The proportion of kids' homes that have two or more computers jumped from 25% to 39% in 2004. Internet access is now up to 74% in homes with kids.
- Worldwide the number of mobile phone users will grow from 1.5 billion today to 3 billion in 2010.
- Top sites visited by U.S. teenagers are those that facilitate teen communication, pictures, and art.
- New concepts are arising in television programming such as ZeD, a late-night arts-and-culture program from the Canadian Broadcasting Corporation that mixes amateur movies submitted through a Web site with independent film and studio-produced content.

High Tech, High Touch, High Concept

At the advent of the personal computer revolution John Naisbitt's *Megatrends*¹⁴ introduced the concept that high tech leads to a corresponding high-touch reaction. Daniel Pink has extended Naisbitt's ideas in *A Whole New Mind*.¹⁵ He argues that, for the current generation, technology builds on the left-brain abilities of logic, analysis, literalness, and sequentiality and that the right-brain abilities of creativity, empathy, pattern recognition, and the making of meaning will need to flourish in this age. People will need high-concept abilities to create artistic and emotional beauty, detect patterns and opportunities, and craft a satisfying narrative.

Pink claims that the Industrial Age was built on physical labor, and the Information Age is built on people's left-brain capabilities. The upcoming Concept Age will use right-brain capabilities. He predicts we will become a society of creators, empathizers, pattern recognizers, and meaning makers. He argues that developing these new abilities will be part of what it means to be human:

After all, back on the savannah, our caveperson ancestors weren't plugging numbers into spreadsheets or debugging code. But they were telling stories, demonstrating empathy, and designing innovations.

Although previous success in school and work was heavily dependent on left-brain abilities of logic and analytical talent, right-brain abilities are now the abilities that matter most—artistry, empathy, and seeing the big picture.¹⁶

The right-brain senses need to be developed with new emphasis on visual literacy in education. New students, new technology, and new senses are the future.

What Is Visual Literacy?

If literacy is reading and writing, then what is *visual* literacy/fluency? One definition is the ability to understand and produce visual messages. A second definition is a group of competencies that an individual can develop by seeing and at the same time having and integrating other sensory experiences. A third definition is the ability to interpret messages as well as generate images for communicating ideas and concepts.

Yet another definition for visual literacy is "screen language as the new currency for learning." In a recent conversation, John Seely Brown commented:

If you can't deal with screen language, you are not literate.... There is a new kind of digital divide today, and it is the divide between faculty and students. Faculty, stuck in yesterday's analog world, are confronted with students who arrive nicely fluent in digital technology, and the virtuals of hyper speed.¹⁷

Four arguments for an expanded definition of literacy that would include screen language are:

- The multimedia language of the screen has become the current vernacular.
- The multimedia language of the screen is capable of constructing complex meanings independent of text.
- The multimedia language of the screen enables modes of thought, ways of communicating and conducting research, and methods of publication and teaching that are essentially different from those of text.
- Those who are truly literate in the 21st century will be those who learn to read and write the multimedia language of the screen.¹⁸

Different Perspectives on Visual Literacy

When considering new topics, such as visual literacy, we are often biased by who we are. I spent my professional career in computing. When I look at the opportunities in visual literacy, I first think of software and the excitement of new technologies. An artist might think of visual literacy as an advance of artistic expression. Academics might think first of fine arts education. Researchers might look for measures that prove effectiveness. Depending on a person's background, the definition of visual literacy may differ, yet all are parts of the same concept.

The Need for Assessment

There is a need for various types of assessment when integrating visual media into the curriculum. When assessing a student's work, how does an instructor grade a five-minute video for a class assignment? How does an unskilled instructor know the merits of the artistry and creativity or the technical effort in relation to the content?

Another assessment need is to create a body of knowledge that leads to educational reform and new evaluations of curricula. Education relies on a culture of anecdote rather than evidence. New programs create new opportunities to capture results from the beginning:

The research about media education and technology have much in common in that they are characterized by an abundance of heartwarming stories about their efficacy in education—single-case, qualitative, and descriptive evidence. Qualitative methodologies are extremely useful and rigorous in their own right, but credibility demands more diversity in research. There have been too few studies in the field of educational technology that are conducted longitudinally or that result in quantitative or comparative evidence of improved student performance. Media education has amassed even fewer studies that assess its contribution to teaching and learning. This is a sorry state of affairs that must be remedied if media education is to be taken seriously as a viable education strategy.¹⁹

Traditional and Nontraditional Media Sources

One of the biggest issues with video content is the strong restriction being imposed by copyright owners of materials. For example, it is now nearly impossible to obtain permission from Hollywood studios to use movie clips and animations for educational purposes. Educators and students must be extremely cautious when using certain materials for fear of reprisals.

On the other hand, these restrictions may be the impetus for the development of materials that can be shared with proper attribution. The open source movement is committed to making new kinds of content libraries available for general use. With millions of students and teachers creating content with their 21st-century literacy skills, Hollywood and the music industry may not be needed in the future.

An emerging example is Flickr, a digital photo-sharing Web and Web services site recently acquired by Yahoo. The service is often used in conjunction with blogging. Flickr allows photo submitters to categorize their images by using keywords and tags, which makes it easy for searchers to locate images on a certain topic:

Flickr boasts 270,000 users, four million photos, 30 percent monthly growth in users, and 50 percent monthly growth in photos.... Flickr is a phenomenon, a fundamentally different way of using digital photography and the Internet. Flickr is simply the manifestation of the perfect storm of camera phones, consumer broadband, blogs, RSS, and folksonomy tags.²⁰

Another example is the Madison Digital Image Database (MDID2) at James Madison University, a freely distributed open source system that allows instructors to teach with digital images. MDID2 supports multiple image collections with searching, slideshow packaging, and uploading. Currently the database has 57,000 image records and 209 video records, and is used at 37 colleges.

21st-Century Skills

The *enGauge* report on 21st-century skills has visual literacy as one of the key skills for the future, identifying it as “the ability to interpret, use, appreciate, and create images and video using both conventional and 21st-century media in ways that advance thinking, decision-making, communications, and learning.”²¹ According to the report, students who are visually literate

- have working knowledge of visuals produced or displayed through electronic media;
- understand basic elements of visual design, technique, and media;
- are aware of emotional, psychological, and cognitive influences in perceptions of visuals;
- comprehend representational, explanatory, abstract, and symbolic images;
- apply knowledge of visuals in electronic media;
- are informed viewers, critics, and consumers of visual information;
- are knowledgeable designers, composers, and producers of visual information;
- are effective visual communicators; and
- are expressive, innovative visual thinkers and successful problem solvers.

It is now difficult to find any industry in which knowledge workers do not need significant visual literacy skills. The 21st-century workforce must every day create and critically interpret visual content.²²

Strategies to Infuse 21st-Century Literacy

Although visuals and media have become ubiquitous in our society during the 21st century, words and text still dominate literacy efforts within education. The reality is that visual literacy is often considered trivial, transitory, or even nonacademic. Visual literacy is outside any mainstream literacy curriculum, taught only in specialized courses in disciplines such as art and architecture.

How can colleges be relevant when they ignore this major force in society? How can institutions of higher education not teach the type of literacy students use most?

Recognizing the importance of visual literacy, the Maricopa Community Colleges could take programmatic actions to prepare its students, following three strategies used to promote other types of literacy in the past. First, a visual literacy course (similar to the efforts of computer literacy 20 years ago) could be developed. Second, a program of visual literacy across the curriculum could be instituted that resembled writing across the curriculum (WAC), a program to improve students' learning through requiring writing assignments in all courses. Third, teacher education programs could be used as building blocks by inserting a visual literacy training component into the curriculum.

The history of computer literacy at Maricopa Community Colleges dates back to 1984. The first big effort was the Faculty Computer Literacy Project, where faculty members were loaned a personal computer for three months and received training (this was a big deal back then). The personal computer revolution became huge during the mid-80s, and Maricopa caught that wave with perfect timing. Computer literacy courses for students became a significant driver of the enrollment increases that justified the 1994 capital expansion program.

In the 1990s, computers became so integrated into the academic program that a majority of the courses included an instructional technology component. In the current decade, the ever-increasing use of instructional technology is leading to larger portions of instructional content being delivered by computers. Hybrid and distance-learning courses continue to grow. Visual literacy could follow the same path as computer literacy, but at a much faster rate.

The creation of a visual literacy program would not alter or replace the curricula that exist for development of media professionals, fine arts programs, technology certifications, and so forth. Just as the computer literacy programs did not alter or replace the professional development programs of computer science during the past 20 years, visual literacy programs would be designed to serve all students.

A New Visual Literacy Course

Some envision visual literacy programs as a core requirement. Elizabeth Daley notes, "I wouldn't be surprised if at some point a multimedia program that is equivalent of freshmen writing starts appearing at universities. It will become a requirement for graduation."²³ A new course designed for visual literacy could look like the one developed by Susan Metros at Ohio State University. The

learning outcomes described for this course, Visual Literacy in the Age of Information Abundance, state that students will be able to:

- identify their learning styles;
- comprehend the meaning of visual literacy in the context of information literacy;
- create graphic representations of data, information, knowledge, and wisdom (charts, maps, concept maps, and storyboards);
- use a digital camera, iMovie, or equivalent, and other presentation and multimedia software to create a short movie; and
- provide classmates with constructive face-to-face and online feedback.²⁴

Visual Literacy Across the Curriculum

Another approach to visual literacy across the curriculum would be to encourage and support all faculty to assign projects to students that use visual media. An example of a success with this approach occurred in the anthropology courses taught at Mesa Community College by Rick Effland. Instead of a 10-page typed research paper as an assignment, Effland's students created digital movies. He found that the amount and quality of the research done by the students in a video format far exceeded the quality of their work done with written papers. The students were more engaged, worked collaboratively, and learned more when they used visual media. Karla Pagtakhan, a student in one of these classes, commented:

Creating the movie was one of the best experiences I've ever had. I not only educated myself with the topic I presented, but also learned the process of piecing together clips to compose the film. I honestly could say it was hard work and patience was necessary. I had to think a lot to fit it all together. Every piece had to fit in order to complete the "puzzle." Once the movie was completed, however, I realized that all of the work and patience was truly a huge payoff for me. I had learned a lot more than what I would have learned from just a paper on the topic.

In the Beijing Project at Colgate University, a faculty member took 19 students to Beijing and gave them an assignment requiring them to express what they learned. All 19 chose video. The assignment required students to cover different aspects of Beijing such as nature, transportation, Tiananmen Square activities, childhood, music, and the marketplace. The benefits of a video project versus the traditional method of a written paper, used by this professor in the past, were described in the following quotes from students:

forced to take images, utilized the city, experienced the city; people can see what I mean...when I say traffic congestion...can see and hear; capture images and moments to capture the essence of Beijing; no matter how good a writer you are you can't capture the sophisticated well-rounded experience of Beijing; this combines all their senses; the photos and video forced us to be more involved in what we were doing and experiencing rather than being detached in writing.²⁵

In the early 1980s, Maricopa Community Colleges and many other colleges nationwide implemented a program to improve students' learning through WAC. One of the cornerstones of this program was to improve students' critical-thinking skills. A program of visual literacy across the curriculum would have the same objectives as WAC but would use visual media.

Another successful across the curriculum program at the Maricopa Community Colleges is the Multiple Intelligences/Learning for Understanding (MI/LfU). Glendale Community College professor Rene Diaz-Lefebvre reports significant improvements in student satisfaction, retention of material, and effective learning when students complete assignments in a variety of formats such as collage, drawings, creative dance, acting role playing, interviews, and so forth. The program exists in courses across the curriculum including English, Spanish, biology, math, psychology, nursing, art, and others. Over several years students have rated the MI/LfU option a more effective assessment method of their learning over traditional paper/pencil testing by a 4 to 1 ratio.

Teacher Education Programs

It is important to embed this literacy into teacher education programs at the beginning of the teacher education cycle. Although training of current teachers should not be ignored, the most fertile ground for change might be found in the new teachers who are just beginning their careers and are still developing their pedagogical methodologies.

Most teacher education programs offer a course on instructional technology. Visual literacy training must be an addition to those courses in the form of a new course or embedded in several courses.

Any teacher education program that would embrace the teaching of the new literacy would be on the cutting edge in the United States. (It appears that Europe and Australia have more momentum in this area.) Favorable sponsorship, support, and recognition would come to pacesetting institutions.

Conclusion

New learners, new technologies, new workforce skills, and new modes of creative expression are driving the need for visual literacy. Being visually literate will be a prerequisite in the future because visual media are integral to how we work, entertain, communicate, and educate. Although visual literacy is in its academic infancy, as evidenced by the multiplicity of titles, definitions, assessments, and perspectives, it is evolving rapidly outside the academy.

Computers and information technology, new a quarter century ago, have been integrated into higher education. Visual literacy requires a similar response. Changes to curricula, instructional methods, campus infrastructure, learning spaces, budgets, and employee skills are inevitable; the important question is not will they change, but when will they change? Higher education must adopt as strong a commitment to visual literacy as it does for computer literacy.

Visual literacy must not be viewed as just another drain on college resources or as another education “add-on” or “frill.” Visual literacy offers educators an opportunity to connect with learners and enhance the quality of their learning. Visual literacy deserves a significant focus in higher education.

Endnotes

1. I attended the 21st Century Literacy Summit in San Jose, Calif., April 26–28, 2005, sponsored by Adobe, the George Lucas Foundation, and the New Media Consortium (<http://www.nmc.org/summit/index.shtml>). Participants were internationally represented. Some of my thoughts in this paper come from listening to many experts on this topic during those days.

2. For simplicity's sake and to avoid confusion, despite semantic differences I will use the terms *visual literacy*, *21st-century literacy*, *new media literacy*, and *screen language* interchangeably.
3. George Lucas, *EduTopic*, issue 1 (September 2004), <http://www.glef.org/magazine/ed1article.php?id=art_1160&issue=sept_04>.
4. What Research Tells Us About Generation X, Center for Teaching and Learning, Western Michigan University, "<www.wmich.edu/teachlearn/winter1999/teaching/genx.html>.
5. *Touch the Future* Projects from the Science, Story & Creativity PBS series, <<http://tffuture.org/services/projects/pbs.html>>.
6. Technology and Young People, Media Literacy.com, <www1.medialiteracy.com/stats_technology.jsp>.
7. Marc Prensky, "Digital Native, Digital Immigrants, Part II: Do They Really Think Differently?" *On the Horizon*, vol. 9, no. 6 (December 2001), pp. 15–24; available from <<http://www.marcprensky.com/writing/>>.
8. Bill Gates speaking to a meeting of U.S. governors as reported by Thomas L. Friedman in the *Arizona Republic* (May 4, 2005).
9. Annual Avant Guardian Issue (2004), *Surface*, <<http://www.t-salon.net/2004/11/its-time-to-embrace-visual-literacy.html>>.
10. Steven Johnson, "Dome Improvement," *Wired* (May 2005), <<http://www.wired.com/wired/archive/13.05/flynn.html>>.
11. See Wikipedia for a definition of *tipping point*, <http://en.wikipedia.org/wiki/Tipping_point>.
12. Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (New York: Little, Brown, and Co., 2000).
13. ZDNet, <<http://blogs.zdnet.com/ITFacts/>>.
14. John Naisbitt, *Megatrends* (Lebanon, Ind.: Warner Books, 1988).
15. Daniel H. Pink, *A Whole New Mind* (New York: Riverhead, 2004).
16. Daniel H. Pink, "Revenge of the Right Brain," *Wired* (February 2005).
17. John Seely Brown, personal conversation, 2004.
18. Elizabeth Daley, "Expanding the Concept of Literacy," *EDUCAUSE Review*, vol. 38, no. 2 (March/April 2003), pp. 32–40, <<http://www.educause.edu/apps/er/erm03/erm032.asp>>.
19. Kathleen Tyner, "New Directions for Media Education in the United States," submitted reading for the "21st Century Literacy Summit," San Jose, April 26–28, 2005.
20. "Stewart Butterfield on Flickr," *O'Reilly Network*, February 4, 2005.
21. *21st Century Skills: Literacy in the Digital Age*, enGauge, <<http://www.ncrel.org/engauge/skills/skills.htm>>, p. 24.
22. Prensky, op. cit.
23. Daley, op. cit.
24. Susan Metros, personal correspondence, December 2004.
25. R. Nardelli, "Beijing, China: Seen Through the Lens of Students," presentation at the 2005 NLII Annual Meeting, New Orleans, La., January 23–25, 2005.