Digital Literacy and Adult Learners: An Experiment in Hypermedia Reading

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Abstract: The abilities and dispositions required by today’s information and communications technologies are often referred to as “digital literacy,” one of the “new literacies” presented by the advent of digitalization across virtually all conditions of living and learning. In postsecondary and adult learning digital literacy is nowhere more evident than in distance education. For instructors and programs there is the task of reconciling the boundless optimism about the digital literacy of the “Net Generation” with empirical studies of just what today’s students can do in applying it to academic tasks. A study of students completing a hypermedia-based assignment showed that despite claims for their practices in online reading their performance in writing about the results failed to display effective use of online resources. In order for students to meet high expectations in using the Web they must be equipped with skills that are foundational to genuine digital literacy.

Introduction

“Electronic paper” is the phrase used to describe the digital interface of the newest e-reading devices; but no one actually believes that what the eyes see is the same as a traditional printed book. And so, as the screen becomes a ubiquitous feature of life today, our view of literacy changes to accommodate new forms of cognitive experience.

Since the 1990s proposals have appeared for “information literacy” (Association of College and Research Libraries, 1999), “multi-media-literacy” (Mayer, 2001), “silicon literacy” (Snyder, 2002), “multi-literacies” (Selber, 2004), “digital competence” (Krumsvik, 2008), “new media literacy” (Ohler, 2009) and, in a common formulation, “digital literacy” (Glister, 1997; Eshet-Alkalai, 2004). That phrase refers to more than reading and writing online. It suggests a way of going about learning in electronic formats. This paper addresses these questions: “What attitudes toward the new literacies do adult students bring to online learning?” and “How do they perform on tasks essential to ‘digital literacy’?”

The New and the Newer

The abilities and dispositions required by today’s information and communications technologies have their roots in traditional reading and writing, as is suggested by the phrase “new literacies” (Knobel and Lankshear, 2007), often used as a synonym for “digital literacy.” Thus, there is traditional print-based literacy and these “new” abilities represented in different formulations in the “literacies” cited above.

1. Searching for and evaluating online information and selecting resources for educational and other purposes and tasks (e.g., course assignments and informal learning projects).
2. **Interpreting** online resources and **integrating** learning from online and traditional print resources.

3. **Writing** with word processing in traditional and new forms (e.g., blogs) and **communicating** in audio and visual formats (e.g., podcasts and video).

4. **Collaborating** on projects of academic and creative expression (e.g., wikis) and **participating** in social networks for the exchange of information and ideas.

An additional ability may be said to be keeping up with innovations in hardware like mobile devices and software, or rapidly multiplying “apps.” Thus: “The new literacies of the Internet are not just new today, they will be newer tomorrow, even newer next week, and continuously renewed on a schedule that is limited only by the human capacity to keep up” (Coiro, et al., p. 2008).

Influential institutions see themselves as advancing educational reform reflecting “digital literacy.” Primary examples are the MacArthur Foundation’s “Digital Media and Learning” initiative with its high profile higher education projects (like HASTAC at Duke University), the programs and publications of the service organizations EDUCAUSE and the Sloan Consortium, and the recent report from the U.S. Department of Education titled *Transforming American Education: Learning Powered by Technology*. These are contributions to the case for adapting teaching and learning to the “new literacies” reflecting hopes for fundamental reforms at all levels of education.

In postsecondary education the “new literacies” are features of both the academic and social lives of students, the overlap of the two meaning now well known new problems of classroom distraction. Preoccupation with digital devices is but one sign of a major cultural transition, presenting for instructors pressure to have a role in the new literacies, or at least to recognize where the abilities named above can be used, modified, or even ignored for the new work of electronic teaching and learning. And, again, what’s new demands unceasing attention with the ubiquity of mobile devices and proposals for education.

### Online Learning and Questions of Screen Reading

In postsecondary education “digital literacy” is nowhere more evident than in online learning. Any online course, including the popular “hybrids,” demands considerable reading on a screen, including text written by the instructor and assigned (in books and articles) by him or her, instructional PowerPoint, student postings to a discussion forum, faculty and student blogs, course-based wikis, and hypermedia resources like educational or institutional websites, and documents (e.g., organizational reports) in the syllabus.

But the character of screen reading, including what is done on mobile devices, is only now becoming a subject of inquiry, addressing such questions as: How does it compare to traditional reading, particularly as it is done now in multi-media contexts? What habits of cognition and understanding does it promote? What do new reading practices and preferences (like the use of e-readers and smart phones), and their relation to traditional ones, mean for the design of online courses? And what abilities do students need to make the most of the rapidly expanding digital world and as literacy is redefined for academic work?

There was talk in the 1990s of the “paperless office.” Considering what some partisans of digital technology say of its inevitable educational hegemony, particularly in relation to the uses of Web 2.0, are we headed toward the “paperless curriculum”? Will the result be a liberating
“seismic change in epistemology” (Dede, 2008)? Or, as Nicholas Carr (2008) asked, in reflecting on the distractions and the new and superficial habits of reading posed by electronic texts, “Is Google Making Us Stupid?”

**Adult Students and Hypermedia Reading**

For institutions and academic programs there is the task of reconciling the boundless optimism and reform urgency in accounts of the “Digital Natives” or “Net Generation” (Oblinger & Oblinger, 2005; Tapscott, 2008) with empirical studies of just what abilities in the new literacies are available for postsecondary teaching and learning (Bennett, Mason, & Kervin, 2008). The problems of digital literacy reflect a tangle of cultural, education, social, epistemological, and even biological themes (Eshet-Alkalai, 2004). Here we consider them in a decidedly practical way, trying only to add what we are learning from experience in online teaching.

Since 2008 we have asked teachers and others enrolled in a fully online MA program about their habits and preferences about screen reading. They report both enthusiasm for the new forms and attachment to traditional ones, focusing on the nature of different kinds of academic tasks and their personal expectations for teaching and learning.

Age makes a difference in practices and preferences but so too do professional circumstances and duties. Thus, screen reading is variably understood. Being adept at it is indispensable for learning and a resource for professional development. But it is also the source of some uneasiness about its impact on habits of literacy still believed to be essential to educational and professional success. Thus only half of the students responding to our surveys (part of anonymous course evaluations) agreed with the statement: “I read online with as much comprehension (i.e., understanding and memory of major and minor points) as when reading traditional texts.”

Ambivalence about reading online may be an important if unacknowledged constraint on students in online learning. But student performance in an important task of screen reading makes us skeptical about some of the claims they make about their online habits. Thus, students were asked about their uses of the many hyperlinks in the courses which rely on a hypermedia format. While the courses include several assigned books and films, students are also asked to use online texts, videos, audio programs online exhibits, and more. Some are named as “assignments” but the great majority (among the hundreds of links) are designated as “opportunities.” The idea is to create a kind of “web” for each course representing the learning opportunities (in any subject) available via the Internet.

Making the most of hypermedia means a kind educational “volunteerism,” or pursuing the digital trail of a subject as directed by interest and opportunity. A high number of students (78%) reported using the links in the online courses (“I made frequent use of the optional hyperlinks in the units, apart from course requirements”). And 70% also claimed to have moved from link to link in, for example, digital museum exhibits or educational websites (“When a hyperlink in a unit took me to a website, I often clicked on additional links I found there”). Thus, many students represented themselves as adept “hypermedia readers,” a phase used in the syllabus to name a necessary ability—one of the “new literacies—for success in online learning.
Still, student writing revealed another side of the story, reflecting the limits some scholars find today with the online abilities of the “Net Generation” (e.g., Clark, 2009). A hypermedia-based writing assignment completed by students in a course on “Concepts of Educational Inquiry” (part of Michigan State University’s online MA program) displayed a common problem with screen reading. Thus the surface of the digital resource—or what was said about the historical subject—counted for more than what could be learned by capitalizing on the depth of inquiry available in what the resource showed in documents, images, audio, and video.

Students were asked to probe the learning history of an important figure in the American past. The sample included Benjamin Franklin, Jane Addams, Robert Oppenheimer, and others and reflects the assigned text for the course unit, Philip Cusick’s acclaimed A Passion for Learning: The Education of Seven Eminent Americans (2005). For each figure the course offers an account of how he or she is represented online, and links are supplied to resources like digital exhibits, archives of documents and photographs, and educational websites. The assignment is to write about how particular digital resources add evidence and depth to the arguments made by Cusick. In effect, students were asked to show how the Web can supplement a traditional print text to extend learning beyond what was previously possible.

Many teachers (the majority of students in this course, nearly all members of the “Net Generation”) appear to display habits they likely criticize among their own students using Google or another search engine. They may favor the digital world with its variety and fast pace. But their performance on an academic task designed to demonstrate what they can make of abundant online resources lags behind their presumably new cognitive and intellectual abilities.

For this study we reviewed the work submitted by the 38 students (in five sections of the course in from 2008 and 2010) who chose to explore online representations of Benjamin Franklin. The unit on A Passion for Learning offers hyperlinks to 3 online exhibits and 2 audio programs about Franklin’s life and work. In total, these Web resources include hyperlinks to 11 essays and articles, 41 audio recordings, 3 video recordings, 30 lesson plans, 2 exhibit guides, and 522 images of original documents, portraits, cartoons, and other items. In essence, students were given access to what biographers and historians themselves use to write their narratives.

Each submission, an essay of 500 words, was evaluated individually on the first two of the “new literacies” (named above) students presumably use in digital learning: searching, selecting, interpreting, and integrating. A score of 1 (absent) to 5 (exemplary) was assigned for each criterion. The raw average total score (2.30) reveals that our assumptions about student abilities to capitalize on the Web for educational tasks should be questioned and investigated more thoroughly.

The raw averages of each criterion seem to indicate that students are most capable at selecting electronic resources (3.05) relevant to an assigned task, and least capable of integrating learning from online and traditional print resources (1.76). Students struggled with searching for, evaluating, and using online information (2.36), even though the task of searching the entire worldwide web was reduced for them to 3 exhibits and 2 audio programs (with their hyperlinks). Surprisingly, students proved to be wanting in their ability to interpret the online resources they encountered (2.02).

The surprisingly low score for interpreting the online resources seems to be especially telling of the need for students to acquire new abilities. Many students were very capable of identifying “neat” features they encountered, but few were able to make meaning of them. For
instance, one student reported: “This resource supplies a time line that helps the reader to
visually see the different years of importance in Benjamin Franklin’s life.” By contrast, another
student described how she noticed a similarity among the three exhibits and, after pursuing it
further, she made a convincing argument about a specific aspect of Franklin’s education.

Students themselves expressed frustration about the demand for new skills that the Web
presents: “The list of information is substantial. It has a number of links to many sites, however,
it is somewhat overwhelming to look at this and make a real judgment about his [Franklin’s]
ability to articulate ideas.” Like this student, others articulated and demonstrated the ease at
which they could “surf” the “interesting” resources that the Web provides, but they found it quite
difficult to search, evaluate, and effectively use those resources for a specified task.

The criterion on which students scored the lowest, integrating learning from online and
traditional print resources, suggests that hypermedia reading is a very different sort of reading.
That is, the ability to make the most of a traditional printed book does not necessarily translate
into the ability to make the most of hypermedia text. Traditional printed books are generally
linear and simultaneously require and promote focused thinking. Hypermedia text, however, is
networked and can easily promote scattered and unfocused thought. The students who
demonstrated the ability to infer how one item/section/image was related to the next in the
hypermedia text were successful at integrating online and traditional print resources. Of course,
understanding the relationship between content is essential to the task of integrating learning
from diverse resources.

Conclusion: Higher Expectations

We suggest that recognition of adult students’ attitudes toward screen reading matters but
so too do their actual practices of digital literacy. This research contributes to curriculum
development, course design, and assessment in distance learning, and other pedagogical
applications of online technology, by all accounts the fastest growing sector of postsecondary
education.

On the one hand we must have realistic expectations for adult students still adapting to
the world of digital information in many formats. On the other hand we can promote higher
expectations among adult students in having their Internet reading and viewing habits, and their
expository writing, display attention in depth to online resources. In order for students to
successfully achieve higher expectations in their use of the Web they must be equipped with
skills (e.g., remaining focused while reading non-linear texts and inferring networked
relationships) that are foundational to genuine digital literacy.

References

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