

Teaching Digital Literacy Digitally: A Collaborative Approach

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As little as we know about the future for which we are preparing our students, it is clear that it will be a place that is governed by information. Accessing, processing, building with, and communicating that information is how we will all make our livings.[...] Being literate in this future will certainly involve the ability to read, write, and do basic math. However, the concept of literacy in the 21st century will be far richer and more comprehensive than the 3 Rs of the one room school house, a legacy that still strongly influences today's education environment.

-- David Warlick

In recent years, digital storytelling has turned college and university classrooms into spaces of creative critical production. Digital stories have proven to be a powerful medium for students to represent a theoretically-informed understanding of texts and contexts in a form other than "traditional" writing. -- Michael Coventry and Matthias Oppermann

Introduction: Multiple literacies in the twenty-first century

Scholars and teachers alike agree that today's students need more than alphabetic literacy to communicate effectively in a world increasingly suffused with digital media and information. As Gunther Kress suggests in *Literacy in the New Media Age*, we must broaden what we mean by "literacy" to include communication across media – screen, image, and page.¹ We add to Kress's list information and digital literacies. The Association of College and Research Libraries defines the former as the "ability to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."² Digital literacy, by extension, includes "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers in *an ethical and responsible manner*."³ Our students are literate in these senses, to some extent. For instance, they can text, blog, and Twitter; they socialize on, embed videos in, and share photos and links on their Facebook pages; and they are experts at finding information (or so they believe) via Google. To what extent, however, do these abilities demonstrate *critical* literacies? How do we create curricula to engage students in what they know, with the information resources and communication tools that they commonly use, and translate these skills into critical abilities for exploring, interpreting, and participating in an increasingly complex globalized community? How do we teach students to use and to cite information properly and ethically when materials are so easy to download and often don't appear, to them, to be proprietary? How do we teach digital literacy digitally?

We offer some answers to these questions by way of a discussion about a writing class that we co-taught at Cornell University in spring 2008. Paired together by the John S. Knight Institute for Writing in the Disciplines, Jami, a senior lecturer in the English Department, and Lance, a reference and instruction librarian, collaborated to develop and teach a first-year writing seminar entitled "Writing and Research in the University," which focused on teaching writing skills and research strategies, through the use of new interactive "Web 2.0" technologies.⁴ We used both Confluence wiki and Springshare LibGuides software to manage our course content and to stimulate and encourage two-way communication. We taught the class in a networked, PC-equipped library classroom, where students had access to digital cameras and recorders as well as moviemaking/editing software. We trained them on this equipment as well as on how to navigate and contribute to the wiki, since the chief aim of the course was to enhance students' literacies across the board.

Using “literacy” as a broad theme, then, we structured the curriculum so that students started in familiar territory (writing personal essays about themselves) using familiar study habits (looking for information with Google and Wikipedia). In other words, we integrated writing, research, and technology instruction into the course curriculum to guide students through general overviews to more specific resources and skills. Students began by crafting a personal literacy essay that they peer-reviewed (in both individual and group settings), revised, and then uploaded to the course wiki. As we moved through the term to more sophisticated assignments, students became more comfortable as writers, researchers, and critical thinkers and translated their written work into multimedia essays. This process allowed students the creative freedom to explore areas of their own interest both in preparing their writing assignments and in using whatever tools they needed for their digital media projects.

Why this course, and who are our constituents?

Though students may not possess the critical literacies they need in order to participate fully and ethically in a digital world, they are considered “Digital Natives”,⁵ that is, they have grown up in a world that for them was never *not markedly digital*. They are adept at crafting identities in online environments and at creating new relationships there as part of their social network. As John Palfrey and Urs Gasser explain, these students “are using networked public spaces as crucial environments to learn socialization as well as identity development.”⁶ As persons born in an era in which access to an abundance of information is as easy and as quick as the click of a key, these Digital Natives—or Net Geners⁷—are nevertheless confronted with the challenge of sifting through that information to discern what is and what is not valuable. “The information environment is growing far more diverse and complex as we proceed through the digital age,” the authors continue. “For Digital Natives, much turns on the individual’s ability to navigate through all this information of varying qualities. Those who come to understand the dynamics of information production in the digital era will be better prepared than anyone else to thrive in the integrated digital world.”⁸

It is precisely because of the complexity of the “integrated digital world” that we must include in our curricula—and in our classrooms—information specialists, or “translators,” as Susan Gibbons calls them, who are versed not only in the intricacies of information storage and retrieval but also in particular subjects, whether English, math, history, anthropology, or biology.⁹ Because they occupy the “unique” space of being both “insiders” and “outsiders,” says Gibbons, “librarians can serve as guides and aids as students seek to understand the various disciplines they encounter through their coursework.”¹⁰ Although “Net Geners” are to a large extent “both *digitally and visually literate*” as Gibbons asserts,¹¹ given their predilection for virtual life, they still need our help in navigating discipline-specific information and especially discipline-specific ways of making meaning. The goals for our course, then, were twofold: First, we wanted to help our students develop a more robust understanding of literacies, particularly those that occur in hybrid spaces: online, on paper, in sonic form. Second, we wanted to enable students to be more sophisticated information gatherers and discerners when they worked on their assignments, whether they were using the library’s resources—digital and print—or searching the web. We believe, with Lee Rainie, that students’ “affinity for technology translates into new and different expectations about how to gather, work with, translate, and share information.”¹² Put another way, our twenty-first-century students are suspended between two paradoxical spaces. On the one hand, they have never *not* lived in a digital world and as we

discuss above, are rather comfortable in online environments. At the same time, their use of Google, Wikipedia, Facebook, MySpace, YouTube, and Flickr does not translate into critical digital literacy as we have defined it. In fact, they still “need teachers to show them how to navigate the digital age, how to mind the information overload for meaning, and how to make wise connections through social networks.”¹³

Although we are referring mainly to students here, we realize that all of us find ourselves in unfamiliar waters when it comes to navigating a digital universe of information in a Web 2.0 culture. According to the Computer Science and Telecommunications Board (CSTB),

Information technology is playing an increasingly important role in the work and personal lives of citizens. Computers, communications, digital information, software—the constituents of the information age—are everywhere. Between those who search aggressively for opportunities to learn more about information technology and those who choose not to learn anything at all about information technology, there are many who recognize the potential value of information technology for their everyday lives and who realize that a better understanding of information technology will be helpful to them.¹⁴

Importantly, the authors recognize that “Information technology has entered our lives over a relatively brief period of time with little warning and essentially no formal educational preparation for most people [and that m]any who currently use information technology have only a limited understanding of the tools they use and a (probably correct) belief that they are underutilizing them.”¹⁵ We designed our course to bridge these crucial gaps in literacies.

The library setting and the first literacy assignment

Beginning with the first week of class, we introduced the concepts of information and digital literacy through a series of in-class exercises and discussions. Starting with a general overview of where to look for different kinds of information we then integrated seven additional library sessions into our syllabus that addressed the specific resources and skills students needed to complete class assignments. Just as our students are wont to do, we started with Google and Wikipedia and discussed their usefulness and their limitations. We wanted them to develop a habit of thinking critically about the information they were retrieving and to evaluate its content for bias, objectivity, timeliness, and accuracy. Rather than discredit these tools, we tried to get the students to start their research and information gathering with the web sources they were familiar with, but to use these sources in a “scholarly” or academic way. Therefore, we posed questions about these resources: Did the Wikipedia entry have a bibliography of books and articles? How does a resource with a “.edu” in the url differ from a source with a “.com” or “.org” domain? What is proprietary information? After starting where *they* were, we introduced the Cornell Library’s web site and encouraged them to take advantage of the wealth of resources contained there and to compare and contrast what they found using the Library Catalog with what they discovered through a general web search.

The information and activities we covered in these library sessions are preserved on the course’s LibGuide, which grew both systematically and organically through the semester. Each week (and sometimes daily), we added pages and boxes of information within pages, including links, embedded videos, and research tips, to correspond with our lesson plans and as a response to student inquiries and suggestions. The LibGuide software contains a number of Web 2.0

features, including a user's ability to comment on any element of the guide (individual boxes, whole pages, or the entire guide) and a librarian profile box that contained contact information to promote communicating questions and other needs with library staff. Several of our in-class exercises included having students supply answers to research questions by writing in the comments boxes, thus sharing them with the class. The "finished" LibGuide that is accessible now is the final product of this semester-long work. As is true of the course wiki, current viewers are looking back through content that was added sequentially during the course.

Complementing our instruction on information literacy, we also started students thinking generally about literacy. The first writing assignment focused on alphabetic literacy, and so we had students read a few "traditional" —meaning alphabetic—literacy narratives: Richard Rodriguez's "Aria,"¹⁶ Mike Rose's "I Just Wanna Be Average,"¹⁷ and Min-Zhan Lu's "Writing as Struggle."¹⁸ After discussing these in class, we asked students to craft a three- to five-page literacy narrative that re-tells or analyzes one important scene, incident, experience, or character in their development as readers, writers, or thinkers. We wanted them to devote equal time to both dramatizing the memory and pondering its significance. We reminded them that this was not simply an exercise in "navel gazing." Rather, we expected them to reflect critically on what literacy means to them and how they saw this operating in American (or college) culture. We included some specific questions to get them started, including these: 1) What are your earliest memories associated with learning to read? (2) What are your earliest memories associated with learning to write? (3) How do you currently approach reading/writing tasks? (4) How do you feel about yourself as a reader? And (5) How do you feel about yourself as a writer?

In the context of writing essays and conducting preliminary research, we needed to ensure that students felt at home using the class wiki. We taught them the basics of how to log on, how to create their own wiki pages, how to edit their work on the course pages, and how to use the comments boxes on each page as spaces for providing feedback on each other's writing. As with all writing assignments, we expected students to post drafts of their papers to their pages and to be prepared to review them as a large group. Although we made the wiki public by the end of the course, at this time we limited the wiki to course members only. Because students were still working on polishing their prose and developing their projects in steps, we didn't want them to feel like their works in progress were available to "the world." That said, we encouraged students to think of the class wiki as a public site insofar as their work, their comments, their in-class responses and discussion leads were available to everyone in the class. We wanted students to see themselves as writers for a public audience and to become used to the idea that they could use digital spaces like the class wiki to publish their work, get feedback, and then revise and resubmit it. This process made our large-group peer review sessions productive because we projected papers from the computer onto the large screen. As students offered comments on the paper, Jami would type, highlight, or delete text as a way of demonstrating the writing process. Students in the course found this kind of peer review to be the most useful method for improving their writing. Students remarked on this quite specifically in their final evaluations: "I thought using the wiki was such a good idea; it really did help me communicate"; and "I really liked the large-group peer reviews. Useful because I got very diverse feedback from different perspectives."

Although the first literacy assignment proved difficult for students—they had not done a lot of concrete thinking about their own experiences as readers and writers and were unsure how to discuss them in ways that weren't trite or simplistic and many were still grappling with the technology of the course—we did get a number of excellent revised essays. One, whose

polished revision will be published as an exemplar in a literacy textbook in the near future, was written by a native Singaporean who described the conflict he experienced in using standard (British) English in school and “Singlish” at home and among his friends. On the one hand, he knew the importance of speaking English—the language of business—both at school and later, at work. Yet he felt compelled to remain true to his heritage as a native of Singapore, a small country that has been influenced by people from many places and who speak different languages, whether Mandarin Chinese, Cantonese, or Malay. It was important for him to connect with family and friends through language—Singlish—just as it was crucial for him to learn when it was appropriate to speak standard English. He wrote about times when as a student at Cornell he wasn’t taken seriously because of his accent and his use of non-standard English words, which made him feel like an outcast. He developed a strong sensitivity to his own language use, realizing not only that language practices are specific and local but also that they contribute to one’s inclusion or exclusion from groups when the “rules” for speaking have been somehow culturally violated.¹⁹

The digital literacy assignment

In preparation for the next assignment, we wanted students to search the web for blogs with postings on digital media and literacy, so we developed a guide page specifically devoted to blogs and blogging. We asked students to read several essays and blog posts about blogging, including “Blogging 101”,²⁰ how to use RSS feeds to collect postings on topics they wanted to follow; and how to use blog search engines, such as Technorati, to locate blogs that were specifically related to their final project. We also previewed several videos, including Michael Wesch’s “The Machine is Us/ing Us,”²¹ and then discussed in class. In addition to these activities, we asked students to read Marshall McLuhan’s “The Medium is the Message”²² as well as several excerpts from Sherry Turkle’s book, *Life on the Screen*,²³ requiring students to prepare short introductions to the texts that served as springboards for class discussion. They posted their “discussion leads” on a designated class wiki page that was accessible to the entire class and then led the class in a discussion of the texts.

Such discussions gave students enough of a background on digital environments that they could begin to think of themselves as Digital Natives, even if they had never used that epithet to describe themselves. Given our focus on digital literacy and the environment in which we were teaching the course, we were particularly interested in having them consider McLuhan’s assertion that “our conventional response to all media, namely that it is how they are used that counts.”²⁴ Specifically, we wanted them to contemplate the ontology of digital media rather than to see it simply for its content. As a result of this new epistemological paradigm, suggests Turkle, we need new “cognitive maps” to orient ourselves to the ways in which media requires of us new ways of making meaning.²⁵ The students’ assignment was not only to consider what digital literacy means but also to examine its implications for users (and non-users). In line with McLuhan’s stance, we wanted students to think of the technology we were using not only as vehicles of content delivery but also to think of the very specific technologies themselves—from the hardware to the wiki, the LibGuide, the search engines, and so on—and to consider carefully what each’s critical cultural function might be.

Once they had completed their written component, we had them write a one-paragraph summary of it, focusing on its main point, and then to imagine how they might construct a visual narrative that draws on the same examples and makes the same point, but using only images and

music, not text. We explained that the purpose of the second half of the assignment was to help them become more rhetorically aware of the myriad ways we produce knowledge—through writing, visual imagery, and audio. How, we asked, can you represent your ideas in multiple modes? How, for instance, would you choose to narrate, without talking, a “story” about blogging, creating or watching YouTube videos, or communicating with friends on Facebook? For this assignment the students also needed to know where to find, how to access, and how to cite and credit multimedia items—images, music files, and video clips—available for “free” or fair use on the Web. Students were directed to the Creative Commons.org web site that provides access to materials not restricted by copyright and to image databases like Flickr, where they could find any number of images. They were also given the option of using their own digital images or scanning images from other media. All of the sources were to be cited properly and listed in their paper’s bibliography and their video’s credit sections.

As a prelude to this first video assignment, we took time to discuss what other outcomes we expected of students. First, we introduced them to the concept of digital storytelling, which we define as projects (narratives) that combine texts, images, and audio files into a short film clip. We led them to the website of Berkeley’s Center for Digital Storytelling²⁶ as one exemplar that appealed to us, and Jami shared with students some multimodal narratives that students from another class in the previous semester had completed for their final projects. Once students felt comfortable with the assignment, we provided them with ample class time to complete their videos.

Students were ready for the new writing task and performed remarkably well. One student, for example, wrote about her experience as a new Facebook user as a college freshman. As Palfrey and Gasser note, “in these online social networks, many good things are happening: Participants learn what it means to be friends, to develop identities, to experiment with status, and to interpret social cues.”²⁷ Like other Digital Natives, she saw using Facebook as an opportunity to meet new people since she found the prospect of being new at a large university such as ours intimidating. She explains that she had blithely accepted invitations from people who “friended” her, whether or not she knew them. After realizing what she had done, she began to reverse this process, particularly when she saw that she had exposed herself to strangers with whom she was not comfortable. Her essay functions as a warning to those who would uncritically participate in a social network without first asking themselves what their motives were as well as what they hoped to achieve. Palfrey and Gasser would not dismiss our student’s experiences, but they would put her fears to rest by reminding her that sites like Facebook “are working on ways to use technologies to help young people learn how to pick up on the social cues that they need to understand in order to stay safe.”²⁸ The authors go on to say that it’s not the technology per se that should concern us, but rather, the “root causes” of problematic behaviors, which may occur in digital or real environments.²⁹ This reassurance notwithstanding, our student’s message warrants respect.

Like this student, another student, Kun Yi, wrote an essay delivering a cautionary message, this one based on his own and knowledge of others’ heavy reliance on Google as their main (or only) method of research. Being a member of the “Google Generation,” he warns of the all-too-easy ways in which to “find” information without considering the many other places where information resides. According to him,

many teenagers of [the] Google generation do not, as many believe, acquire a competent information literacy even though they [a]re familiar with ... new media, especially the

Internet, from an early age. It is important for them – and all of us – to distinguish search engines, tools that require literacy to handle, from actual resources of information. Otherwise, if the user does not have the information literacy needed to search, a search engine can easily be a source of distraction rather than information.³⁰

Kun goes on to suggest that all of us are members of this “Google generation,” and as such it is incumbent upon us to consider not just how we retrieve (or locate) information but also what we do with it.

Building a digital story out of the written product was hard, initially, since students were unused to thinking about what it means to compose in image and sound, and to rely very little on text (slides with minimum writing were allowed, for quoting purposes). As we have discussed above, students are comfortable as consumers, and certainly to some extent as producers of web content, but do they consider the reciprocal relationship between the medium, the content, and the producer? To help students in crafting a product they would be pleased with and proud of, we developed guidelines in the way of a rubric that established clear criteria for evaluation: How well does the video’s overall message communicate clearly—does it have a central message or thesis? Will an audience unfamiliar with the topic and who has not read the corresponding print essay be able to follow your line of reasoning? Indeed, the videos students produced—and for every one of them this was a completely new task—exceeded our expectations. The student who wrote about the Google generation produced what we deemed to be a superior digital interpretation, not simply because it demonstrated a clear understanding of the assignment but also, and perhaps more importantly, because we felt that he had vindicated our reason for the course. Kun’s work clearly demonstrates what we had been emphasizing in the course: Google is a great search engine that contains a plethora of useful information, but it pays to evaluate that information, and it behooves us to consider libraries, books, and other resources in our research.³¹

Combining traditional print research with digital composing

It is important to reiterate the point we have been making throughout this essay. That is, we see digital storytelling as part of, not separate from, the larger process of making meaning. As Michael Coventry and Matthias Oppermann explain, “there is a somewhat familiar relationship between research and writing which underpins student work; however, because students are working towards a digital end, they are already thinking about their work as being different—more visual, more compressed, and more public than traditional writing products.”³² We believe this to be true of their first digital videos, but since the final project was more research intensive, we want to emphasize here the value of combining traditional print research with digital composing since these meaning-making activities are reciprocal, rather than mutually exclusive.

With this philosophy guiding us, we led students toward their final project, a research paper and corresponding video on a topic of their choosing. By the end of the third week in the term, students were to have decided on a topic or issue they would pursue for their final project, and in the fourth week we guided them through the process of writing a proposal as a way of thinking their project through, from crafting a good research question to examining the relevance of their chosen subject or issue to contemplating its implications and consequences in the longer term. Over several weeks’ time, once the proposal was completed and the topic approved,³³ students built their annotated bibliographies a few citations at a time as a prelude to the white

paper they would eventually write. By the time there were about four weeks left in the term, students began mapping out their digital stories, just as they had done for the previous digital video.

Since this second digital video was similar to the first one, students were able to move more quickly toward their goals, but unlike the previous assignment, they had to include narration, which turned out to be the most difficult part of the project. (One student directed us, in his/her final evaluation, to “reduce the amount of work in this class. The visual essays actually take a lot of work.”) Because they had done so much work on their final projects and we wanted them to keep in mind the public nature of their work, we asked students to deliver a final oral presentation introducing their work, explaining what prompted this particular research and describing in brief what their research process involved (these were similar in most respects, but each student’s project also featured enough unique dimensions that warranted some discussion; moreover, we wanted to give students practice in oral delivery, since most students at Cornell do not take courses in public speaking and may not otherwise have the opportunity to hone this important skill).

Despite the complaints---which were indeed legitimate---students wrote comments such as “I learned that composing in new media [is] very closely related to writing. When composing through digital multimedia [*sic*], it was exactly like writing an essay but explaining my arguments through pictures, music, etc., rather than words.” Another wrote that ***

Conclusion: Digital Natives and new cognitive maps

We believe that there will always be a place for the traditional alphabet-based paper in the college writing classroom, and Jami has certainly not jettisoned this. But more and more, we see that new media technologies undergird every aspect of our lives. By combining the print with the digital, our students were able to think more broadly about their work –how it would look and how it would sound—and to translate their ideas into a complex mixture of words, images, and sound. Further, the fact that students knew they were producing a digital project made them more aware of their multiple audiences: those of us in the immediate space of the writing classroom or those in the vastly larger and ambiguous space of the Internet who might come upon their work while surfing and browsing.

As the 2009 Horizon Report makes clear, “increasing globalization continues to affect the way we work, collaborate, and communicate. . . . Increasingly, those who use technology in ways that expand their global connections are more likely to advance, while those who do not will find themselves on the sidelines.”³⁴ We hope that our collaboration in the networked writing classroom will have given students the critical literacy tools they need to participate fully in this global environment.

Notes

- ¹ Gunther Kress, *Literacy in the New Media Age* (NY: Routledge, 2003)
- ² "Information Literacy Competency Standards for Higher Education," American Library Association, September 01, 2006.
- ³ Paul Gilster, "Digital Literacy Revised," *Ethics and Electronic Information*.
- ⁴ Tim O'Reilly, "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software," *O'Reilly*.
- ⁵ John Palfrey and Urs Gasser, *Born Digital: Understanding the First Generation of Digital natives* (NY: Basic Books, 2008), 1.
- ⁶ Palfrey and Gasser, 26.
- ⁷ Susan Gibbons, *The Academic Library and the Net Gen Student* (Chicago: American Library Association, 2007), 12.
- ⁸ Palfrey and Gasser, 159.
- ⁹ Gibbons, 9.
- ¹⁰ Gibbons, 10.
- ¹¹ Gibbons, 17 (emphasis in original).
- ¹² Quoted in Gibbons, 20.
- ¹³ Lorna Collier, "The 'C's of Change: Students—and Teachers—Learn 21st Century Skills." *The [NCTE] Council Chronicle* 18 (November 2008), 8.
- ¹⁴ Computer Science and Telecommunications Board. "Being Fluent With Information Technology" (Washington, D.C.: National Academy Press), 1999.
http://www.nap.edu/openbook.php?record_id=6482
- ¹⁵ *Ibid*
- ¹⁶ Richard Rodriguez, "Aria," *Hunger of Memory: The Education of Richard Rodriguez* (New York: Bantam, 1982).
- ¹⁷ Mike Rose, "I Just Wanna Be Average," *Lives on the Boundary* (NY: Penguin, 1989).
- ¹⁸ Min-Zhan Lu, "From Silence to Words: Writing as Struggle," *College English* 49 (April 1987): 437-448.

¹⁹ Ian Cheong, “Singlish—Cultural Gem or Historical Baggage?” Ian Cheong’s Home Page, *Writing and Research in the University*, Cornell University.

²⁰ Anton Zuiker, *Blogging 101*.

²¹ Michael Wesch, “The Machine is Us/ing Us,” *YouTube*.

²² Marshall McLuhan, “The Medium is the Message,” *Understanding Media: The Extensions of Man* (New York: McGraw-Hill), 1967

²³ Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (NY: Simon and Schuster, 1997), 45.

²⁴ McLuhan, 18.

²⁵ Turkle, 45.

²⁶ See the Center for Digital Storytelling, <http://storytelling.org>

²⁷ Palfrey and Gasser, 26.

²⁸ *Ibid*, 104.

²⁹ *Ibid*, 110.

³⁰ Kun Yi, “Beyond Google Generation: a Proper Point of View of Search Engines Needed,” Kun’s Home, *Writing and Research in the University*, Cornell University.

³¹ Kun Yi, “The Google Generation,” *YouTube*.

³² Michael Coventry and Matthias Oppermann, “From Narrative to Database: Multimedia Inquiry in a Cross-Classroom Scholarship of Teaching and Learning Study,” *Academic Commons* 5 Mar 2009.

³³ Jami met with each student individually, helping them first to understand the genre of the proposal and then to be able to write it as a way of clarifying their thinking about their topic.

³⁴ L. Johnson, A. Levine, and R. Smith, *The 2009 Horizon Report*, The New Media Consortium, Austin, Texas.

Bibliography

- American Association of College and Research Libraries. "Information Literacy Competency Standards for Higher Education." American Library Association.
<http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm>
- Carlacio, Jami. *Writing and Research in the University*. Wiki. Cornell University.
<https://confluence.cornell.edu/display/WRITING142/Writing142>
- Collier, Lorna. "The 'C's of Change: Students—and Teachers—Learn 21st Century Skills." *The Council Chronicle* 18 (November 2008): 6-9.
- Computer Science and Telecommunications Board. "Being Fluent With Information Technology." Washington, D.C.: National Academy Press, 1999.
- Coventry, Michael and Matthias Oppermann. "From Narrative to Database: Multimedia Inquiry in a Cross-Classroom Scholarship of Teaching and Learning Study." *Academic Commons* 5 Mar 2009. <http://www.academiccommons.org/commons/essay/narrative-database>
- Gilster, Paul. "Digital Literacy Revised." *Ethics and Electronic Information*.
http://www.aea1.k12.ia.us/techdocs/SandBox/PPT/Copyright_Pres.pdf
- Heidig, Lance. *Course Research guide*. <http://guides.library.cornell.edu/writing142>
- Johnson, L., A. Levine, and R. Smith. *The 2009 Horizon Report*. Austin, Texas: The New Media Consortium. 2009. <http://wp.nmc.org/horizon2009/>
- Kress, Gunther. *Literacy in the New Media Age*. NY: Routledge, 2003.
- Lu, Min-Zhan. "From Silence to Words: Writing as Struggle." *College English* 49 (April 1987): 437-448.
- McLuhan, Marshall. "The Medium is the Message." *Understanding Media: The Extensions of Man*. New York: McGraw-Hill, 1967. 7-21.
- O'Reilly, Tim. "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software." *O'Reilly*. Posted on 30 September 2005.
<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Rockley Group, The. "Writing for Web 2.0." The Rockley Group. Posted on
<http://rockley.com/blog/?p=28>
- Rodriguez, Richard. "Aria." *Hunger for Memory: The Education of Richard Rodriguez*. New York: Bantam, 1982. 11-40.

Rose, Mike. "I Just Wanna Be Average." *Lives on the Boundary*. NY: Penguin, 1989.

Turkle, Sherry. *Life on the Screen: Identity in the Age of the Internet*. NY: Simon and Schuster, 1997.

Warlick, David. "Contemporary Literacy: Online handouts for Redefining Literacy and Literacy & Learning Presentations." *Redefining Literacy for the 21st Century*.
<<http://davidwarlick.com/wiki/pmwiki.php?n=Main.RedefiningLiteracyForThe21stCentury>>

Wesch, Mike. "The Machine is Us/ing Us." *YouTube*. Posted 8 March 2007.
<http://www.youtube.com/watch?v=6gmP4nk0EOE>

Yi, Kun. "The Google Generation." *YouTube*. Posted March 26, 2008.
http://www.youtube.com/watch?v=_XqRR5WJ85k

Zuiker, Anton. "Blogs: A Short History." *Blogging 101*.
<http://www.unc.edu/~zuiker/blogging101/>