As students rush to online reading, let's make sure they can find their way around hypertexts.

Adolescents and even younger students now turn to the Internet as their primary source of information and communication, doing much of their reading and writing online. Clicking, surfing, and chatting online are their preferred literary activities. Because today's students are highly motivated to read and write online, it makes sense to encourage them to do so. If students are motivated, they are more likely to take ownership of and value literacy (Kamil, 2003). But rather than simply trust that students who know how to read print can also read well online, teachers need to closely examine the quality of students' online reading to ensure that it promotes their literacy development.

The Nature of Hypertext

To understand the potential of digital texts to support students' reading development, we must understand how qualities inherent in hypertexts affect the reading process. Hypertexts include interactive multimedia and are characterized by multisequential text patterns, which present readers with an array of information resource options online. They are also highly interactive, allowing readers to make choices on the basis of personal interest or purpose. With online reading, the reader's purpose and choices, rather than the author's, determine the reading sequence. Conventional reading strategies that are effective for reading a specific block of text—or what Landow (1992) calls a lexia—don't necessarily apply to reading hypertexts. When readers click on a hyperlink, it takes them to another lexia whose structure and content may be different from those of the lexia with which they began. Readers of hypertext continually face decisions about which hyperlink to click on next and why, and they are forced to make associations among lexias and create their own narratives as they go.

Reading hypertext requires that students develop sophisticated comprehension-monitoring abilities that involve reviewing, evaluating, and synthesizing various lexias (McNabb, 2006). In my work evaluating innovative Internet-based school programs, I have observed striking differences between how students read online text and how they read printed materials. Typically, the interactivity of hypertexts draws out students' natural curiosity as they forge their own reading paths on the Internet. Although some students monitor their reading sequence and comprehension successfully, many others become disoriented when attempting to complete online reading assignments.
I remember watching a student I'll call Sara, an average reader, as she used the Internet to research how lifestyle and personal attributes influence a person's health. As a starting point, Sara's health education teacher had pointed her to bicycle racer Lance Armstrong's official Web site (www.lancearmstrong.com). After staring at the screen for several moments, Sara clicked on the link “About Lance.” She read about Armstrong's training with the U.S. Olympic cycling developmental team during high school, and then clicked on “Key Stats” from another menu of topics and discovered such random facts as Armstrong's resting heart rate.

At this point, Sara was feeling confused. She clicked on “Links,” faced another directory of topics, and aimed for the “Shimano Components” link, without knowing why or what she might find there. To her surprise, she found a Web site offering the link “Which Bike Is Right For You?” Sara's interest quickly perked up; she had been begging her parents for a new bike for her birthday. Later, after spending time on the Shimano Web site, Sara realized in frustration that she had not accomplished anything related to her assigned topic.

In the same class I observed John, also an average reader but one whose engagement tended to be higher when reading online. More familiar with the Internet than Sara, John knew how to preview the Lance Armstrong site's home page by rolling the mouse cursor over the pop-up headlines at the top of the screen. John had an interest in medicine, and he knew that Armstrong was a cancer survivor. John was savvy enough about how information is often organized in online hypertexts to predict that the link most likely to yield information about Armstrong's personal lifestyle and battle against cancer would be “The Lance Armstrong Foundation.” Once on the foundation's home page, John paused to preview all the possible hyperlinks on the screen, including “Let Your Voice Be Heard,” “Share Your Story Now,” and “Take Control.” He determined through actively monitoring his comprehension of these hyperlink labels that “Take Control” would be the best link to click on next. This hyperlink led to a Web page where John found survivor stories and tools, but nothing specific about Armstrong's story.

Because John was actively monitoring the information he was reading and the results of his hypertext decisions, he realized that he needed to revisit the research assignment. Doing so helped him refocus his search for information about Armstrong's lifestyle. He decided to use keywords such as lifestyle, health, and Lance Armstrong and successfully located reading material using Google.

Both John and Sara followed their interests, which is what many students do when presented with a world of reading options. John, however, demonstrated better hypertext reading and comprehension-monitoring strategies. His reading choices were more deliberate and more focused on the assignment. Sara, a novice hypertext reader with weak comprehension-monitoring abilities, was confused by the many hyperlink options and made decisions that caused her to waste valuable time reading hypertexts unrelated to the assigned research objective. Her learning problem was compounded by the teacher's poor initial Web site selection, which John was able to recognize and compensate for.

The Myth of Teen Competence

The contrasting hypertext reading experiences of Sara and John illustrate the complexity of learning to read online. In a recent series of studies, researchers assigned teenage students and adults to visit informational, entertainment, and commercial Web sites to complete a series of tasks, including online reading. Teenagers generally performed less effectively (with a 55 percent success rate) than did adults (with a 66 percent success rate). The researchers concluded that the difference between the teens' and the adults' performance was attributable to teens'
insufficient reading and information research skills as well as to dramatically less patience (Nielsen, 2005). Teenagers in the study also exhibited less tolerance for Web sites that they considered boring or difficult to figure out. And they gave more credence to visually appealing sites than adults did.

I have seen similar performance problems with middle and high school students in classrooms where the Internet is an integral component of the curriculum but instruction falls short of preparing students for online reading. Problems show up particularly when students are given independent online reading assignments. Students like Sara who lack the active comprehension-monitoring skills needed for reading hypertext often experience information overload or disorientation. They need guidance to develop an internal narrator who makes effective decisions about which hyperlink options to select in pursuit of a reading goal (McNabb, 2006). Without an internal narrator to synthesize and sort online information, students cannot make sense of a hypertext reading sequence.

**From Dodging Chaos to Providing Support**

Teachers who structure their curriculum in a linear fashion often experience the Internet as a chaotic force in the classroom. They prefer to leave online instruction to a computer teacher or create in-class assignments calling for independent online reading and research. Meanwhile, computer teachers often focus their attention on teaching technology literacy skills rather than on guiding students through content-area reading on the Web. Too often, online time becomes independent reading and research study time.

Teachers must take a more active role in students' online reading. The teacher who assigned students to find information on lifestyles and personal health using the Lance Armstrong Web site did not spend enough time designing the assignment. If she had more thoroughly previewed available Web resources, she would have discovered that the Armstrong site was highly commercialized and an unsuitable curriculum resource. She could have searched on Google to find more appropriate Web sites, such as the one John found featuring the article "Inside Lance Armstrong's Remarkable Success" ([http://my.webmd.com/content/article/107/108551.htm?src=rss_cbsnews](http://my.webmd.com/content/article/107/108551.htm?src=rss_cbsnews)). This site reports on the work of scientist Edward Coyle, who studied Armstrong's lifestyle and health for years.

It takes time to structure a collection of online reading resources aligned with an assigned reading objective, but we need to take this time. In addition, teachers need to learn strategies that can individually guide students' Internet reading in their zone of proximal development. The ability to scaffold students' comprehension-monitoring skills as they navigate hypertext is a crucial teaching skill in the networked classroom (McNabb, 2006).

For example, with a networked computer presentation station, a teacher can guide a group of students through an online research task, asking students to make predictions about what information various available links might lead to. The teacher can call on students to summarize the meaning of texts on a single Web page and to verbalize the associations they make as they move from one lexia to another. The teacher can also model for students how to use the rich context of online hypertext to expand their knowledge of specialized words beyond those found in grade-level textbooks.

**Techno-Byte**
In 1997, schools reported 21 students per instructional computer. In 2004, schools reported 3.8 students per instructional computer.

—Technology Counts, 1998, 2005

Monitoring Students' Paths

Successful teachers monitor their students’ online reading processes and intervene when they see a student becoming frustrated or taking an incoherent reading path. Teachers need to become keen observers, watching for clues about whether or not students' online reading leads to comprehension. Readers who are monitoring their comprehension online will typically behave in ways that show that they are thinking about their reading choices, such as systematically assessing a Web site's breadth by visiting all the lexias one node away from the home page or backtracking when their narrative sequence no longer makes sense. Students should be able, when asked, to meaningfully summarize what they have read and why. Teachers can use these clues as evidence that each student is actively monitoring his or her comprehension online.

If a student clicks on links in seemingly random order, then that student may have underdeveloped hypertext comprehension-monitoring skills or lack the memory capacity to stay focused on a specific reading purpose during online time. Poor hypertext readers will often look perplexed when asked what they are reading.

It is impossible, however, to supervise everything students are reading online. The nature of hypertext allows students to follow their own curiosity and interests, as we saw with Sara. Although it is important to engage students in reading through their personal interests (Alexander, 2003; APA Work Group of the Board of Educational Affairs, 1997; Bransford, Brown, & Cocking, 1999), the level to which the Internet permits the pursuit of personal interests poses a challenge for teachers trying to keep track of students’ comprehension.

Fortunately, online tools can reduce this problem. For example, teachers can now create student login accounts and then access each student's search history through Google by going to the URL www.google.com/searchhistory/login. Or if working in a password-protected collaborative learning environment, it may be possible to track each student's link log of hypertexts visited online. Teachers can assign students to annotate their search history or link logs and explain the basis for their reading choices. This assignment could be paired with a short essay or oral presentation in which each student explains what he or she read online. Information about how a reader selects from and connects the many reading options available online provides valuable data about that reader's comprehension-monitoring strategies, or lack thereof.

Once teachers identify students who are struggling to read well online, the teacher or a trained reading buddy can sit with that student and scaffold his or her comprehension monitoring during online reading tasks. For example, the teacher can model how to think aloud and make semantic connections while navigating different lexias on a given topic. Once the student understands this strategy, the teacher can observe the student's own navigational path without interrupting or making a judgment until the logic of his or her choices starts to break down. At that point, it's best to intervene by demonstrating how a more advanced reader would approach the same hypertext reading task. An advantage of guiding students as they read online is that an observant teacher can directly intervene in the student’s reading processes, many aspects of which are invisible when students independently read printed materials.
Tapping the Advantages

Reading online can give students new opportunities to identify biased language or compare different authors' perspectives on a topic. The rich, interactive multimedia context offered by online hypertext can enhance students' comprehension and build new knowledge that is complex or difficult to acquire from linear print alone. The multimedia features of online text illustrate meaning through audio, video, graphic, and kinetic text expressions as well as the printed word.

Online readers can choose among vast resources for meaning making, which puts content control in the hands of students to a much greater degree than does a print-based curriculum. This requires teachers to add strategies to their reading instruction so that student readers, instead of surfing aimlessly, effectively use that control.

References


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