EMERGING TECHNOLOGIES

LITERACIES AND TECHNOLOGIES REVISITED

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Ten years ago, this journal produced a special issue on "Literacies and Technologies." It seems an opportune time to revisit this theme, given major shifts in the nature of electronic reading and writing in recent years. Static Web sites have been displaced as the core of the Web by an ever-increasing number of services allowing peer-to-peer and peer-to-many communication. Access to Internet data may come through a conventional Web browser or, increasingly, through dedicated applications on a mobile device. More and more options are available to write and read about one's own life and about that of people we care about or have an interest in. The lives of our students increasingly are invested in this kind of reading and writing and in other networked collaborative, social, or gaming activities. One of our challenges today as language educators is to find creative and effective ways to leverage our students' heavy investment in social networking to promote and facilitate language learning. Much has changed since 2000, yet a number of concepts and analyses from that LLT issue can be effectively applied to our tech world of today.

READING

I am maintaining here the organization of my column in the 2000 LLT issue, thus starting with an update on reading and technology. In that issue, Cameron Richards replied to the widespread notion at that time that "visual literacy is in the process of supplanting verbal literacy" (p. 69). Although audio and even video clips were possible in the earliest incarnations of the World Wide Web, it was around ten years that the explosion of popularity of the MP3 music format and the burgeoning use of streaming video made on-line multimedia more mainstream. Since then, the use of streaming Flash has made YouTube a phenomenon, with embedded video clips today a ubiquitous way to consume video of all types. Yet, despite the boom in digital video, text has not gone away. In fact, Net users are likely reading more on-line than was the case in 2000. In part this is due to a shift in the newspaper industry, with more and more newspapers going to a primarily or uniquely on-line delivery. The trend holds for magazines as well. But it is also due to the popularity of reading material available only in electronic format, such as blogs, which have exploded in popularity in recent years. New too is the popularity of uniquely electronic compendia of information, such as Wikipedia. However, for young people today, most reading done on electronic devices is likely a by-product of participation in social networking. Facebook, in particular, has seen tremendous growth and looms large in the everyday lives of many young people particularly in Western countries.

Distracted Readers

Facebook updates, as well as tweets, short messages from the popular micro-blogging tool, Twitter, are short, de-contextualized messages using informal language dealing with topics of everyday life like relationships, current interests, upcoming plans, etc. Some have bemoaned this trend. Nicolas Carr, for example, in a recent bestseller, The Shallows: What the Internet Is Doing to Our Brains, writes about what our current use of electronic media is doing to our thought processes, "Calm, unfocused, undistracted, the linear mind is being pushed aside by a new kind of mind that wants and needs to take in and dole out information in short, disjointed, often overlapping bursts—the faster the better" (Kindle e-book location 231). He is not just referring to social media updates, but also to how the links through the hypertext structure of the Web distract us from focused reading and thinking, citing studies that show that linear, plain texts results in readers remembering more information when compared to the same text containing links.

Carr's books and other of his writings dealing with this topic have raised a good bit of on-line debate. Web provocateur Clay Shirky criticized Carr for trying to defend an outdated literate literary?culture. In response to Carr's lament over a friend's inability to read *War and Peace*, Shirky wrote, "It's not just Carr's friend, and it's not just because of the Web—no one reads *War and Peace*. It's too long and not so interesting." Shirky has a similar take on Proust, arguing that many more people read about why *A la recherche du temps perdu* is important than actually read the work itself. He argues that the culture that values such works is gone, "The threat isn't that people will stop reading *War and Peace*. That day is long since past. The threat is that people will stop genuflecting to the idea of reading *War and Peace*." While Shirky may formulate his views in an extreme way, many commentators in the discussion of Carr's work share the perspective that the abundance and diversity of reading materials on the Web is a positive development, even if it leads to distracted minds.

E-books on the Rise

However one might feel about the cultural implications of our changing reading habits, one development in this area seems inescapable. It is the increasing percentage of reading being done on electronic devices rather than on paper. In 2000 a new e-book format, Microsoft Reader, had just been introduced to great fanfare, particularly as it featured a font rendering process called ClearType, now integrated into Windows. However, this technology failed to gain wide acceptance, as the Pocket PCs it was primarily designed to support did not sell well. Today, Amazon's Kindle device also features a new display technology, e-ink, which emulates the readability of paper print?. After a slow start, the Kindle has become a popular device and, along with it, sales of electronic books have risen sharply. Since summer, 2010, Amazon sells more e-books than hardcover books, and the pace is accelerating. Kindle-formatted books can also be read on other devices such as smartphones. Apple's popular iPad features an e-book reader as well, and Barnes and Noble markets the Nook e-book reader.

The greater availability of reading materials in e-book format, the enhanced displays, longer battery life, and the convenience of storing a large number of books in a small electronic device have combined to make e-books suddenly much more widely used. The Kindle seamlessly syncs (over WiFi) bookmarks, notes, and highlighting across multiple devices. Other e-book readers have similar functionality. Also popular are phone apps such as Instapaper which allow users to save texts from the Web which can then be synced with portable devices and read off-line. Instapaper also has the advantage of displaying an electronic text cleanly, stripping away ads and other extraneous elements present on a Web page. The most recent version of Apple's Safari browsers has a "Reader" function that also displays text only in a new, lightbox-style window. Other apps feature consolidation of multiple pages of a news story or a lengthy article into single document for easier reading. Increasingly it seems, Internet users are warming to the screen as a reading device and forgoing the practice of printing electronic data to paper. Environmental concerns may be accelerating this trend.

WRITING

In 2000, email was the most widely used form of electronic communication. In fact, at that time email was becoming possible on mobile devices, although the extremely small screens and phone-style key input did not make writing very practical. Today texting (SMS) has largely displaced email within the student-age population as the principal means of person-to-person written communication. Traditional phone keyboards are still used for texting, but are being more and more supplanted by virtual keyboards, first made popular by the Apple iPhone, or miniature KWERTY keyboards now available on many smartphones. Some new models feature both styles of text entry. This has opened up many new possibilities for writing on the go, especially as more and more phones are capable of connecting to the Internet. This allows for remote blog posting, social networking updates or other kinds of electronic writing, which were not possible before. Phones today may also incorporate cameras, capable of taking quite good photos, as well as shooting, and even editing video. This allows for media to be posted on-line

along with text. Personal blogs are not uncommon among university students. A number of my students who have studied abroad have created blogs in order to provide a record of the experience for friends and family to share. Using a mobile device makes it possible to update the blog from any location and at any time.

Personalized Writing

Social networking accounts for a good amount of writing being done by the current generation of students. This, in fact, has become for many young people, a vital part of their social lives. They stay in contact with friends, acquaintances and family through writing updates to their Facebook pages and through checking regularly what others have written. Twitter too has been growing at a phenomenal rate, pushed along by all the mobile twitter options now available. Clearly, the kind of writing students do for social networking has little relationship to their studies, apart from perhaps joining in a discipline-based on-line group or "friending" fellow students. Language educators need to be cognizant of this development and think about what it might mean for the dynamics of collaborative language learning. Facebook, for example, is not just a U.S. phenomenon, but is being used worldwide, with an interface available in many different languages. Having in the past two years had summer school experiences in China and Russia, with schools hosting foreign students from a variety or countries, I know that in both cases the students in my classes communicated and planned post-course contact through Facebook. In discussing communication options in class, it was assumed that all the students had Facebook accounts. Facebook, however, is not the only such service, there are many similar national varieties. StudiVZ, for example, is popular with students in Germany, Orkut with Brazilians.

Of course, much of what is written within international groups tends to be in English. One way for teachers of other languages to take advantage of the world-wide interest in improving language skills is to set up tandem partners between groups of English learners abroad and target language learners locally. Tandem learning has been more popular in Europe than in the US. Although a number of studies have shown good results for tandem learning, there are also a number of difficult practical issues to resolve, ranging from time zones to diverging cultural practices (O'Rourke, 2005). The main problem, however, is that the writing students do with tandem partners is an assigned school task. This makes students less engaged in the process, and the lower personal commitment tends to put less importance on getting across what they want to say. The value of intense personal engagement for benefiting language learning is clear in study abroad experiences. The main benefit of that experience is, of course, the cultural immersion and the constant input in the target language. But important too is the new receptivity to learning that one feels when immersed in thet target culture. Suddenly it matters in a very practical and directly personal way whether one can compose a sentence that a native speaker will understand. That receptivity leads to more focused and more efficient language learning.

Engaging Students' Real Lives

We need to make being able to write understandably in a second language a similar necessity in students' real lives. This is no easy task in a course-oriented, assessment-obsessed academic environment. It might involve venturing into not only social networking, but also into areas as remote to most language teachers as on-line gaming, which, it has been shown, can be used to motivate language learning (Thorne & Black, 2007). The advantage of students's finding that commitment to real communication outside the classroom is also the likelihood of its continuing when the course is over. Language maintenance is not something to which language teachers traditionally have tended to attach much importance, but it is certainly of significant importance to the lives of many students today. Helping them to put together personalized strategies for language development and language maintenance which go beyond the academic setting should be a service language educators provide. This becomes even more important when, as is increasingly the case today, students study several languages and need to have opportunities to keep their knowledge of the languages alive.

Commercial services are beginning to fill this void, including Transparent Language's byki and LiveMocha. However, these sites are not always designed well, or even include basic tools needed by learners. I agree with Klaus Schwienhorst (2008) that CALL professionals need to think about going beyond using CALL programs in isolation by integrating those programs with existing other tools and services. This may mean showing students where to find and how to use available on-line writing and proofing tools, such as auto-glossers, on-line dictionaries, and browser-based spell checkers. This could also include tools some language educators might feel uncomfortable recommending students use, such as Babel Fish or translate.google.com. These are tools students are likely to find on their own anyway, and it would be helpful to students, both for their course work and beyond, to have an understanding of the advantages and limitations of both machine and crowd-sourced translation services. Having students, for example, compare translations of sample sentences from different automatic translators could prove to be very instructive. Studies such as a recent comparison of usage of the efficacy of on-line dictionaries could also be helpful.

ELECTRONIC LITERACY

In 2000 my home institution, Virginia Commonwealth University, had just announced a requirement for incoming students to own a computer. Today virtually all VCU students own a computer (mostly laptops) and in the most recent student survey, over half also owned portable devices capable of accessing the Internet. Ten years ago there was in addition a computer literacy graduation requirement in place, as was the case at many universities in the US. Students were required to demonstrate facility in email, word processing, and use of spreadsheets. Students could sign up for a 1-credit course to fulfill the requirement or take an on-line proficiency test. Last year the requirement was dropped. There is no longer a need for it; students would hardly be able to complete their studies without that knowledge and more (for example, how to create presentations!) or without ready access to a networked computer. Virtually all courses at VCU have a corresponding course Web site which students are normally required to visit on a regular basis and which serves as the repository of course information, assignments, grades, as well as services such as homework submission, on-line assessments, discussion forums, blogs, group collaboration, etc. Our required student evaluation of instruction at the end of each course includes a number of questions about the extent and effectiveness of the instructor's use of technology. Given the ubiquity of computer technology in the US, the issue is not longer access to technology but how to evaluate its effectiveness. As Carol Chapelle has written (2003), this development has clear implications for CALL research. Studies exploring the comparative effectiveness of classroom instruction compared to computer-based equivalents seem besides the point in an environment in which it is hardly possible not to use technology.

Coping With Information Overload

One skill not included in the former computer literacy requirement at VCU was information retrieval. According to Google CEO Eric Schmidt, from the beginning of recorded human history to the year 2003, human civilization produced 5 exabytes (an exabyte is one quintillion bytes) of information; today that much information is generated every two days. In the face of such an avalanche of information (described by one analyst as an exaflood), it becomes even more important to be able to find and evaluate on-line information. A recent study of students at Northwestern University has shown that this is not an ability widely shared by students today. Students based their judgments on the validity of information solely from rankings in search results, not from consideration of the reliability of the sources. A quarter of the students in the study told researchers they simply used whatever was at the top of the search results list.

Most students in the study relied on Google, with almost religious devotion. Other search options have, however, appeared in recent years, most notably Microsoft's Bing, which has gained a significant level of use. However, no matter how Internet searching is done, the problem remains of how to access the results and find the pertinent and accurate information sought. With the inclusion now of some information culled from social networking sites (public tweets, for example), the problem is becoming more acute.

Searches in known collections of materials, such as the peer-reviewed Merlot offers one alternative to a wide-open Internet search. Increasingly, information is being found as filtered through social networking. Sites/services such as Yelp, for example, offer rankings based on reviews, which can be further filtered by relying more heavily on comments by one's particular circle of acquaintances (who have also registered with the service). The rapidly increasing use of such apps to find and share information has led Wired Magazine to announce recently that the "The Web is dead." While overstated, the article does point to how Internet resources increasingly are being accessed not through the traditional means of a Web browser, but through mobile apps and social networking sites.

A Future for Metadata?

Another direction is represented by Freebase, a data collection service recently acquired by Google. Created by Danny Hillis, one of the pioneers of parallel computing, freebase strives to create an open and structured database of knowledge (Hillis uses the term "Knowledge Web") culled semi-automatically from the Web and tagged semantically. It is too early to tell whether this implementation of the Semantic Web will be any more successful than previous similar projects. Adding meta-data to resources in order to help refine search makes a good deal of sense but it runs up against stiff resistance from users. An interesting venture to encourage use and creation of the Semantic Web is the recently announced partnership between the Global Learning Resource Connection (GLRC) and the IMS Global Learning Consortium that is intended to help governments set up Web-based directories of educational resources, searchable by content and learning standard. This leverages work done by the Achievement Standards Network (ASN), a repository of learning objects tagged with RDF (Resource Description Framework, a meta-data model). The IMS is planning to incorporate the linking of such resources into the Common Cartridge, a interoperability standard for learning content that is being increasingly supported.

OUTLOOK

It is not only Nick Carr who believes the volume of information available to us and the temptation to browse continually through the accumulated storehouse of data can lead to shallow cognitive processing; the concern has been with us for some time. In fact, in the 2000 LLT issue on literacy, Denise Murray refers to her 1995 book, *Knowledge Machines: Language and Information in a Technology Society*, which already "reflects this concern that information is not knowledge, that we might drown in phosphorus dots on a screen and spend our time investigating rather than reading and developing knowledge and wisdom" (p. 50). However one views the Internet today, it is clear that the looming presence of computer tools and services in our lives has effected profound changes. We use available tools and come to rely on them and in turn are shaped by them. This is a point Claire Kramsch made in an article from the LLT literacy issue, in which she discuses the transformation of the concept of authorship to that of agency, and authenticity to identity. In the process, she argued, this was "transforming our conception of foreign language learning by changing the very notions of who we are and how we present ourselves through language" (p. 98).

Multiple Identities

This process has only accelerated with students today creating identities for themselves in many different ways (a Facebook profile, a gaming avatar, a pseudonym for blog posts, a student persona in Blackboard). They engage in a variety of on-line activities, which may include remixing, such as writing fanfiction, informal translating, recreational subtitling, relay writing. As Steve Thorne (2009) has written, language teachers need to recognize the importance and validity of such transcultural and hybridized forms of language use. This suggestion is not new; it is reflected in a well-known position paper from 1996, which influenced substantially the broadening of the concept of literacy, the New London Group's "A Pedagogy of Multiliteracies: Designing Social Futures." The authors sought to expand the understanding of literacy by extending it "to account for the context of our culturally and linguistically diverse and increasingly

globalized societies, for the multifarious cultures that interrelate and the plurality of texts that circulate" (p. 61). A key concept in this re-envisioning was that of design "in which we are both inheritors of patterns and conventions of meaning and at the same time active designers of meaning" (p. 65). The article today seems astonishingly prescient, as do the ideas on literacy pedagogy. In a Eurocall keynote in 2008, Andrea Kárpáti's discussion of "trialogical" learning theory meshes with concepts of the New London Group, with the emphasis on process over outcome, remixing of content and collaborative projects. She gives several interesting examples of EU projects which have moved in this direction, including the KP-Lab and the LeMill toolbox.

Part of the reality of computer-aided language instruction today is the challenge of connecting with students used to using computer technology in ways significantly different from traditional CALL approaches. The CALPER Technology Project offers one strategy for moving in this direction. The project calls for the use of "bridging activities" to connect in-course tasks to the experiences of students in their (real) on-line lives. The advantage of having students connect to learning through use of familiar tools and services is the greater engagement of their interest but also the greater likelihood of continued use after a course is over. At the same time, some caution is called for, as students may prefer to keep their social and academic lives separate. This was interestingly demonstrated in a recent review of Livemocha (Stevenson & Liu, 2009), in which users of the service expressed misgivings over requests for personal information, which they would normally not hesitate to provide to known social networking sites.

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RESOURCE LIST

Electronic Literacy, Searching, and the Semantic Web

- An Introduction to Connective Knowledge – By Stephen Downes
- Are the New Millennium Learners Making the Grade? – OECD Bookshop
- Big Think Small Screen: How Semantic Computing in the Cloud Will Revolutionize the Consumer Experience on the Phone – By Tom Gruber
- Can Google Challenge Facebook in Social? Key Industry Thinkers Say... Maybe – By Marshall Kirkpatrick, ReadWriteWeb
- The DARPA Agent Markup Language – DAML.org
- Debunking the Digital Native Myth – Cengage Learning
- Google CEO Schmidt: "People Aren't Ready for the Technology Revolution" – By Marshall Kirkpatrick, ReadWriteWeb
- Google's Eric Schmidt on What the Web Will Look Like in 5 Years – By Marshall Kirkpatrick, Readwriteweb
- Half an Hour: Why the Semantic Web Will Fail – By Stephen Downes
- KP-Lab System & Tools – KP-Lab Knowledge Practices Laboratory
- Multiliteracies for Social Networking And Collaborative Learning Environments – Electronic Village Online
- Ontologies vs. Formats vs. Scheme vs. APIs (Discussion of strategies for group tagging) – TagCommons
- The Protégé Ontology Editor and Knowledge-Base Framework
- Review and Demonstration of Popular Learning Repositories With School Resources – LeMill
- Semantic Search Engine Hakia Adds Social Feature – By Julie Sloane, Wired
- Semantically-Interlinked Online Communities Initiative – SIOC Project
- So-Called "Digital Natives" Not Media Savvy, New Study Shows – By Sarah Perez, ReadWriteWeb
- Web 3.0, Semantic Web, Potayto, Potahto – By Ted Greenwald, Wired
- Web 3.0: Rosie, Jeeves & That Thing in Your Pocket – By Ted Greenwald, Wired

Reading and Writing

- Android Shipments up Nearly 900% – By Sarah Perez, ReadWriteWeb
- Brain Research: Implications for Second Language Learning – By Fred Genesee, ERIC Digest.
- Instapaper

- The Internet Diet: Nicholas Carr Is a Sane Guide to How It's Changing Us (In The Shallows, Nicholas Carr asks how the Internet is changing minds) – By Michael Agger, Slate Magazine
- Kindle and iPad Books Take Longer to Read Than Print – By Lauren Indvik, Mashable/Tech
- Language Study and the Brain
- Magic Beans Grow Portable Social Networks – By Dana Oshiro, ReadWriteWeb
- Multilingualism, the Brain, & Web Based Learning – By Sabine Reljic
- No, the Internet Won't Make You Stupid – By Erick Schhonfeld, TechCrunch
- Reading This Post Will Make You Smarter, Unless It Makes You Dumber: How the Web Affects Your Brain (Is Nicholas Carr right about the Internet and attention spans?) – By Mary Carmichael, Newsweek

Presentation on theme: "Technological Literacy Revisited Joseph Scarcella, Ph.D. Based on the works of Dr. Bill Dugger, Jr. DTE, Technically Speaking, and the International Technology."â€”Â A definition of Technological Literacy begins with a definition of Technologyâ€¦ All the modifications humans have made to meet our wants and needs, to live longer, more productive lives. â€¦inventions, innovations, and improvements â€¦inventions, innovations, and improvements. 3 Technological Literacy ï€ Technological Literacy encompasses three interdependent dimensions â€“ knowledge, ways of thinking and acting, and capabilities. ï€ The goal of technological literacy is to provide people with the tools to participate intelligently and thoughtfully in the world around them. Technology has been part of the educational system since the personal computer was introduced in the 1980s. More recently, with the advent of the Internet and advanced software, technology has become a part of the daily lives of the majority of Americans. We are shifting into a new age. Benjamin (1995) writes that schools are microcosms of the society that exists outside the schoolhouse.Â Technology is changing the way we think about literacy and the characteristics we consider in literate people. Education will play a major role in the shift from the old to the new definitions of literacy and will battle the social and ethical implications associated with the influx of technology in the classroom.Â The micro revolution revisited. Lanham, MD: Rowman & Littlefield. Nelson, G.D. (1999). Technology Literacy Overview Technology Literacy includes three levels, and each level includes two projects that share a common theme. The first project at each level focuses on using technology to support research, writing, and communication. The second project at each level builds on knowledge and skills developed in the first project while focusing on using technology to support critical thinking and data analysis.Â Technology Literacy projects meets indicators in all six ISTE National Educational Technology Standards for Students (NETSâ€¢S)! The projects give teachers the flexibility to address a variety of content standards, learning objectives, and student outcomes. Request PDF | On Oct 1, 2010, Robert Godwin-Jones published Emerging technologies: Literacies and technologies revisited | Find, read and cite all the research you need on ResearchGate.Â Second language (L2) reading technologies offer an array of options for teaching and learning; they also mark an exciting area of research. This chapter describes the processes of L2 reading and the skills and strategies involved, as well as the theoretical underpinnings of technology-assisted L2 reading. It introduces technologies that have been applied to the teaching and learning of L2 reading as well as the concepts and pedagogical approaches underlying their developments.