

The death of cyberspace and the rebirth of CALL

Mark Warschauer

The notion of cyberspace suggests that there exists a virtual, online world that is distinct from our real world. Cyberspace is a type of fantasyland, where we take on cyber-identities and engage in virtual reality. When we leave cyberspace, we return to the "real world."

I would contend, however, that the significance of online communication lies not in its separation from the real world, but on its impact on nearly every single aspect of the real world. Just as there is no such thing as "speechspace" or "writingspace" or "printspace," so there is no cyberspace, and the notion of it is thus not helpful for understanding the very real impact of online networking on our lives.

In contrast to the notion of cyberspace, let us consider the views of two prominent scholars of human communication. Manuel Castells has written that "Information technology, and the ability to use it and adapt it, is the critical factor in generating and accessing wealth, power, and knowledge in our time" (1998, p. 92). According to Walter Ong, "Technologies are not mere exterior aids, but also interior transformations of consciousness, and never more so than when they affect the world" (1982, p. 82). Thus, according to these important views, with which I agree, information technology is transforming our societies and our lives and even, eventually, our minds, rather than creating alternate worlds.

This is an edited version of a plenary speech given at the "CALL for the 21st Century" IATEFL and ESADE conference, July 2, 2000, Barcelona, Spain.

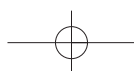
How we think about cyberspace has consequences regarding our view of English teaching as well. If we see cyberspace as an unreal fantasyland, then we will likely have our students engage in some fantasy activities, from which they can then return to the real world. However, if we reject the notion of a separate cyberspace and fully accept the true impact of online communication on real life, then we must teach our students that to read, write, and communicate online is a very important medium of 21st century life. It is this vision that I will discuss today, as I look at how the field of computer-assisted language learning must be reborn in our new century.

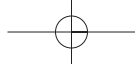
I will begin by examining 10 upcoming developments in the information and communication technology (ICT) and then examine what impact these developments will have on the field of English language teaching.

Developments in information and communication technology

Technology itself does not determine human behavior; however, it does create the possibilities for new forms of behavior and education. The progress of computer-assisted language learning (CALL) has depended until now on the evolution from mainframe computer to personal computer to the networked, multimedia computer. Before we consider what CALL will look like in the 21st century, we must first briefly look at how ICT is expected to progress.

1. The first change will be from phone-based to wireless communication. Low-weight solar-



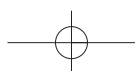


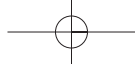
Of General Interest

- powered electric planes like those at <http://www.aerovironment.com/area-telecom.html> will facilitate low-cost wireless communication from anywhere on the face of the earth.
2. There will be a change from dial-up connections to permanent, direct connections, including those from the home. For example, according to Telecommunications Research International (http://cyberatlas.internet.com/big_picture/geographics/article/0,1323,5911_352761,00.html#table), cable modem access in the U.S. grew by some 183 percent in the first quarter of 2000, while DSL access also grew by 183 percent.
 3. There will be a move from personal computers to other computing and online devices (see Compaq prototypes at <http://www5.compaq.com/rcfoc/20000410.html>).
 4. There will be a change from narrowband to broadband. Cable modem connections currently deliver 10 megabits per second, shared among many users. The next version of broadband ("broaderband") is expected to deliver up to 40 megabits per second for each user, or 26 times the bandwidth of a T1 connection. See discussion at: <http://www5.compaq.com/rcfoc/20000605.html>.
 5. Expensive will become affordable, certainly in developed countries, but also to an increasing extent in developing countries. In Egypt, for example, both the cost of purchasing a personal computer and the cost of a monthly Internet account have dropped by nearly half in the past two years.
 6. Related to this, the Internet will change from being an exclusive to a mass form of communication. By the year 2005, it is predicted that some 700 million non-English speakers will be online, including more than 300 million Chinese (see Global Reach chart at: <http://www.greach.com/globstats/evol.html>).
 7. A further development will be from text to audiovisual, as exemplified by the growing popularity of home video production facilities by Apple's new iMovie software (<http://www.apple.com/imovie>).
 8. There will be a transformation from English to multilingual. By 2005, the number of Web pages in English is expected to drop to 41 percent of the world's total (*Computer Economics*, 1999). However, an OECD study suggests that a much higher percentage of the Web pages used for e-commerce will be in English (as suggested by the large percentage of secure.com servers which are in English; see discussion in *The Default Language*, 1999). This will create a situation of diglossia, with people using their own native languages for local or regional communication and commerce, but still using English for most international communication and commerce on the Internet.
 9. Ease in using computers will change from "non-native" to "native." Children who grow up with computers and the Internet will communicate on them with "native-like" fluency, as opposed to our generation that had to make the transition from print to screen.
 10. A final change will be from lab to classroom. Computers and other online devices will be found in every classroom in developed countries, not just in computer laboratories. At least one school in California already has class sets of wireless iMac computers sitting on carts ready to be rolled into any classroom for wireless student Internet access.

Impact on English teaching

What impact will these developments have on English teaching? Let us examine five areas: new contexts, new literature, new genres, new identities, and new pedagogies.





Of General Interest

New contexts

These developments of ICT are important factors helping to change the entire contexts of English teaching. Largely because of the increased use of English in new globalized media and commerce, the number of second-language English speakers has increased worldwide, with a corresponding shift in the relationship between native and non-native speakers of English. According to recent estimates (Crystal, 1997), there are now 375 million native speakers of English (i.e., in the "inner circle" of countries such as the U.S. and England (Kachru, 1986); an equal number of second language speakers of English (in Kachru's "outer circle" countries, such as India and Nigeria), and 750 million EFL speakers of English in countries such as China, Egypt, and Israel. This represents a huge growth in the number of non-native speakers of English around the world.

While a century ago, there were three native English speakers for every proficient non-native speaker of the language, extrapolating from the work of Graddol (1999), I would roughly estimate that in a century from now this proportion will be reversed. And indeed, the very distinction between native speaker, ESL speaker, and EFL speaker will change when millions of people throughout the world, including those in traditional "FL" countries, use English on a daily basis to communicate globally and access international media.

According to a study my colleagues and I conducted in Egypt (Warschauer, Refaat, and Zohry, 2000), while Egyptians use colloquial Arabic for informal chatting and e-mail use, they conduct nearly all formal e-mail communications - even between one Egyptian and another - in English.

Furthermore, one U.S. study found that e-mail is now believed to be the principal form of business communication in certain American industries, surpassing face-to-face and telephone communication (American Management

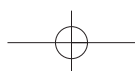
Association International, 1998). This necessitates a rethinking of the relationship between computers and the Internet to English teaching. Just 10 years ago, it was very common for those involved in CALL to say that "A computer's just a tool; it's not an end in itself but a means for learning English." Yet earlier this year, an English teacher in Egypt told me: "English is not an end in itself; it's just a tool for being able to use computers and get information on the Internet." The juxtaposition of these two ideas says a lot about how our thoughts about English teaching and the Internet must change. As I wrote in my first book five years ago, English must be taught to help people learn to write e-mail and use the Internet.

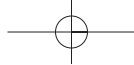
New literacies

The significance of new literacies is another important impact of ICT developments. In the era of print, to read was to attempt to understand the meaning of an external author. In the online era, to read is to interpret information and create knowledge from a variety of sources. Online reading and research skills include selecting the right questions, choosing the right tools, finding, archiving and saving information, interpreting information, and using and citing information. It's the difference between taking a book home from the library - and assuming the information it contains is reliable - and conducting research online, where the very act of reading cannot be done without making critical decisions at every step of the way, from scrolling down a page to pursuing an internal link or trying an external link to quitting the page and conducting a new search. In the past, we used to discuss "critical literacy" as a special category; in the future, virtually all literacy will necessitate critical judgment.

New genres

Similar changes are occurring with respect to writing. It has been suggested that the essay, like the short story, will soon become a marked form - something that we may still study but that few of us will write - to be replaced by





Of General Interest

multimedia (Faigley, 1997). For examples of how student writing will look in the future, glance at some of the educational websites being developed by students in the ThinkQuest competition (<http://www.thinkquest.org>).

Students must master not only multimedia but also electronic communication. Many students will need to carry out some form of collaborative long-distance inquiry and problem-solving as part of their jobs and community activities. It will be incumbent on us to teach the writing skills necessary for these kinds of tasks. This includes both the pragmatics of written interaction as well as the hypermedia authoring and publishing skills needed for effective presentation of material (see discussion in Shetzer and Warschauer, 2000; Warschauer, 1999).

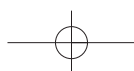
New identities

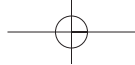
The increased importance of online communications is also contributing to new kinds of identity. Take the case of Almon, a Hong Kong immigrant to the United States discussed by Lam (in press). Although Almon had lived in the U.S. for several years, he performed poorly in English in school and had little confidence in his academic English ability. Yet Almon developed his own "J-Pop" website about a Japanese pop singer, and spent hours every day e-mailing and chatting in English with other J-Pop fans around the world who were attracted to his site. Almon developed self-confidence in his English communication ability, becoming part of a global youth movement that uses English and new media to share ideas. Almon's experience doesn't suggest, of course, that we need to downplay academic

The Three Stages of CALL

| | | | |
|-----------------------------------|---|---|---|
| Stage | 1970s-1980s: Structural CALL | 1980s-1990s: Communicative CALL | 21st Century: Integrative CALL |
| Technology | Mainframe | PCs | Multimedia and Internet |
| English-Teaching Paradigm | Grammar-Translation & Audio-Lingual | Communicate Language Teaching | Content-Based, ESP/EAP |
| View of Language | Structural (a formal structural system) | Cognitive (a mentally-constructed system) | Socio-cognitive (developed in social interaction) |
| Principal Use of Computers | Drill and Practice | Communicative Exercises | Authentic Discourse |
| Principal Objective | Accuracy | And Fluency | And Agency |

Based on Kern & Warschauer, 2000; Warschauer, 1996; Warschauer, in press





Of General Interest

literacies, but it does suggest that students who use new media develop a wide range of literacies and identities, and we need to take these into account in our English teaching.

New pedagogies

This finally brings me to the new pedagogies which all those changes require. The table (see p. 64) illustrates the process of pedagogical changes that have occurred and are occurring in CALL.

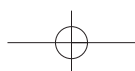
I do not want to suggest that these stages have occurred sequentially, with one following the other, from "bad CALL" to "good CALL." At any one time, one or more of these may be combined for different purposes. However, there has been a general trend or development over the years, with new ideas and uses of computers being introduced in combination with those used previously.

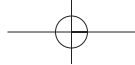
To illustrate the difference between communicative and integrative CALL, the first was based on communicative exercises performed as a way of practicing English. This was in line with a cognitive view of language learning: through interaction, learners can develop language as an internal mental system. The content of the interaction is not particularly important, nor is the nature of the community, nor, really, is the learners' own speech or output. What is important is how the interaction provides input to the learner to develop a mental system.

In contrast, integrative CALL is based on a socio-cognitive view of language learning. From this viewpoint, learning language involves apprenticing into new discourse communities. The purpose of interaction is to help students enter new communities and familiarize themselves with new genres and discourses. From this point of view, the content of the interaction and the nature of the community are extremely important. It is not enough to engage in communication for communication's sake.

I recently spoke to a teacher who was feeling frustrated. She kept telling her students to go onto the Internet once a week to practice English, but they wasted their time chatting in their own language and not really engaging in English. This reveals the limitation of the communicative approach to CALL, which views the Internet as a medium of simple (and perhaps purposeless) communication practice. I suggested to the teacher that she use the Internet to have her students perform real-life tasks and solve real-life problems in a community of peers or mentors. Students could conduct an international research project on an issue that interests them (see Warschauer, Shetzer, and Meloni, 2000), or perform a service for their communities, such as creating an English website for a local organization (Warschauer and Cook, 1999). In these cases, English communication would be incidental to the main tasks, but they would be learning important new genres and engaging in new discourses.

This is related to the objective of CALL and, indeed, of language learning, which evolved originally from accuracy to accuracy plus fluency. I would suggest adding a new objective: agency. Agency has been defined as "the satisfying power to take meaningful action and see the results of our decisions and choices" (Murray, 1997), and "the power to construct a representation of reality, a writing of history, and to impose reception of it by others" (Kramsch, A'Ness, and Lam, in press). Agency is really what makes students so excited about using computers in the classroom: the computer provides them with a powerful means to make their stamp on the world. Think, for example, of the difference between authoring a paper (i.e., writing a text for the teacher), and authoring a multimedia document (i.e., creatively bringing together several media to share with a wide international audience), and even helping to author the very rules by which multimedia is created. By allowing our students to carry out all these types of authoring - toward fulfilling a meaningful purpose for a real audience - we are





Of General Interest

helping them exercise their agency. The purpose of studying English is thus not just to "know it" as an internal system, but to be able to use it to have a real impact on the world.

Conclusion

To summarize how CALL is changing, we will fulfill the promise of computers in the classroom when we allow and encourage students to perform the most real tasks possible, taking advantage of the power of modern information and communication technologies to help try to change the world in ways that suit students' own critical values and the interests of humankind. According to Shneiderman, "we must do more than teach students to 'surf the net,' we must also teach them how to make waves" (1997, p.vii).

Actually, this is not a new idea. Freire and Macedo (1987) had earlier expressed the same perspective. They noted that literacy is not only about "reading the word," but also about "reading the world" - and not only about reading the world, but also writing it and rewriting it (p. 37). These concepts have been an important part of critical pedagogy throughout the 20th century. But today, new forms of information and communication technologies provide a powerful new means of achieving them.

This then expresses nicely how CALL must be "reborn." Let us view neither the computer nor English as ends in themselves, but rather as complementary tools that our students can use to read the world, to write it, and to rewrite it. That is my vision of CALL for the 21st century.

References

American Management Association International, 1998. E-Mail tops telephone, say HR execs at 69th annual human resources conference. Available at:
<http://www.amanet.org/survey/hrc98.htm>
 (downloaded January 1, 2000).

Castells, M. 1998. *End of millenium*. Malden, MA: Blackwell.

Computer Economics, I. 1998. Computer Economics predicts worldwide Internet users to approach 350 million by year 2005. Available at:
<http://www.computereconomics.com/new4/pr/pr990118.html> (downloaded January 1, 2000).

Crystal, D. 1997. *English as a global language*. Cambridge: Cambridge University Press.

Faigley, L. 1997. Literacy after the revolution. *College Composition and Communication*, 48, 1, pp. 30-43.

Freire, P. and D. Macedo. 1987. *Reading the word and the world*. Hadley, MA: Bergin and Garvey.

Graddol, D. 1999. The decline of the native speaker. *English in a changing world, AILA Review 13*, edited by D. Graddol and U.H. Meinhof, pp. 57-68. Guildford, UK: Biddles Ltd.

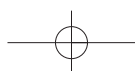
Kachru, B. 1986. *The alchemy of English: The spread, functions, and models of non-native Englishes*. Urbana, IL: U. of Illinois Press.

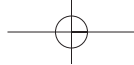
Kern, R. and M. Warschauer. 2000. Theory and practice of network-based language teaching. In *Network-based language teaching: Concepts and practice*, edited by M. Warschauer and R. Kern, pp. 1-19. New York: Cambridge University Press.

Kramsch, C., F. A'Ness and E. Lam. Authenticity and authorship in the computer-mediated acquisition of L2 literacy. *Language Learning & Technology*. (in press)

Lam, E. Second language literacy and the design of the self: A case study of a teenager writing on the Internet. *TESOL Quarterly*. (in press)

Murray, J.H. 1997. *Hamlet on the holodeck: The future of narrative in Cyberspace*. Cambridge, MA: Cambridge University Press.





Of General Interest

Ong, W. 1982. *Orality and literacy: The technologizing of the world*. London: Routledge.

Patrikis, P.C. 1997. The evaluation of computer technology. In: *Language learning through social computing*, edited by R. Debski, J. Gassin, and M. Smith. Parkville, Australia: Applied Linguistics Association of Australia.

Shetzer, H. and M. Warschauer. 2000. An electronic literacy approach to network-based language teaching. In *Network-based language teaching: Concepts and practice*, edited by M. Warschauer and R. Kern, pp. 171-185. New York: Cambridge University Press.

Shneiderman, B. 1997. In *Language learning through social computing*, edited by R. Debski, J. Gassin, and M. Smith. pp. v-viii. Melbourne: Applied Linguistics Association of Australia.

The Default Language. 1999. *The Economist*, May 15, 1999. p. 67.

Warschauer, M. 1996. Computer-assisted language learning: An introduction. In *Multimedia Language Teaching*, edited by S. Fotos, pp. 3-20, Tokyo: Logos.

_____. 1999. *Electronic literacies: Language, culture, and power in online education*. Mahwah, NJ: Lawrence Erlbaum Associates.

_____. The changing economy and the future of English teaching. *TESOL Quarterly*. (in press)

_____. Millennialism and media: Language, literacy, and technology in the 21st century. *Proceedings of the 1999 World Congress of Applied Linguistics*. Tokyo: Waseda University. (in press)

Warschauer, M. and J. Cook, 1999. Service learning and technology in TESOL. *Prospect*, 14, 3, pp. 32-39.

Warschauer, M., G. Refaat, and A. Zohry. March, 2000. *Language and literacy online: A study of Egyptian Internet users*. Paper presented at the annual meeting of the American Association of Applied Linguistics, Vancouver, Canada.

Warschauer, M., H. Shetzer, and C. Meloni. 2000. *Internet for English Teaching*. Alexandria, VA: TESOL Publications.

Acknowledgments

This paper is based in part on two other recent papers: *Millennialism and Media: Language, Literacy, and Technology in the 21st Century* and *The Changing Global Economy and the Future of English Teaching*.



Dr. Mark Warschauer
 Director of educational technology of a US-funded project for improving language teaching in Egypt; Editor of *Language Learning & Technology Journal* and author of numerous books and papers on language, literacy, and technology.
 markw@hawaii.edu

