

BRAND NEW ARTICLES NEVER PUBLISHED IN THE PRINTED JOURNAL!

As part of our continued drive to provide teacher trainers, educators and mentors with a fabulously useful web site we are now starting to put articles up which have never appeared in the printed version of the journal. Some texts are more website- oriented than others. And we feel the article below is one of them. It is absolutely stuffed with useful references!

Enjoy!

**Tessa Woodward
Editor**

We caught the wave...We surfed the net...So where have we landed?

By George M. Chinnery, U.S.A.



Abstract

The internet has deeply impacted educational philosophies and their resultant educational practices in teacher training courses and computer assisted language learning. Amongst the areas of practice most affected are instructional roles and goals, not only in online distance courses, but also in distributed, blended and hybrid learning. The development of pervasive technologies will continue to impact educational philosophies and practices, but obstacles exist. The digital divide remains the dominant manifestation of these. However, definitions of access are shifting as the world develops. The open source movement is also impacting access to educational technologies for e-teachers and for those simply aspiring towards greater integration of technologies in their instruction.

Contents:

1. Introduction
 2. New philosophies
 3. New roles
 4. New goals
 5. What next?
 6. The digital divide
 7. Open source
 8. Conclusion
- References
The Author

1 Introduction

Educational technologist Ben Shneiderman (1998) wrote that “[e]ducational philosophies evolve in response to the needs of each era and in harmony with available technology” (p. 25). The internet has been tightly embraced by English language teachers and teacher trainers for over a decade, as reflected in the plethora of e-language learning programs and e-teacher training degrees and certificates widely available online. The internet’s impact is reflected not only in the philosophies of participating educators, in the form of a veritable paradigm shift, but also (naturally) in their resultant practices, in particular their instructional roles and goals. This article offers an evaluation of these effects for:

- practiced e-teachers and trainers
- instructors of distributed, blended or hybrid courses
- those simply considering greater integration of internet technologies in their instruction.

It also considers future directions and challenges in instructional applications of the internet, with emphasis on the digital divide and the open source movement.

2 New Philosophies

Zinn (1991) classifies educational philosophies into the following five types: liberal, behaviorist, progressive, humanistic, and radical. These philosophies are generally manifest in practitioners’ views of learning and knowledge. Thus, Zinn’s *liberal* category corresponds to classical or traditional models of instruction, where the instructor is the so-called expert, and the goal is to transmit his or her knowledge to learners. The classification of *behaviorist* is based on Skinnerian psychology, whereby the instructor manages and controls learners and the environment, so as to affect behavioral change. The *progressive* philosophy generally follows cognitivist learning theory, which posits that knowledge cannot strictly be acquired through conditioning but rather through experiential problem-solving and integration with prior knowledge. In both behaviorist and cognitivist models, knowledge is perceived as something to be somehow acquired. In constructivist models, knowledge is built and discovered in collaboration with instructors and peers. Zinn’s *humanistic* type—which emphasizes personal growth and development—and *radical* type—which promotes social, political, and economic change, a la Freire—can be classified as such.

Optimistically, theories of learning and knowledge dictate the development of educational technology, although technological determinism, whereby technology dictates, is equally plausible. E-teaching has tended to follow constructivist theories, and is believed to be particularly well-suited to sociocultural constructivism (Bonk and Cunningham 1998). A more radical theory of *connectivism* finds constructivist notions, as well as cognitivist and behaviorist ones, inadequate for the modern era of the net generation (Siemens 2005). It posits alternatively that learning, which is available from myriad sources, “is a process of connecting specialized nodes or information sources.” The successful learner is the one who is able to plug into and connect these different sources. The successful educator helps them to connect.

The subspecialization of computer-assisted language learning (CALL) can likewise be said to have been influenced by technology, as reflected in the three main stages of CALL identified by Warschauer (2004).

- The 1970s and early 1980s marked the period of *Structural CALL*, which was identified by behaviorist skill-and-drill exercises which emphasized accuracy.
- In the late 1980s and 1990s, *Communicative CALL*, which made use of new computer-mediated communication technologies (locally networked and online) to develop fluency, marked the burgeoning of cognitive-communicative approaches of language instruction.
- The 21st Century’s *Integrative CALL* has taken a ‘social turn’ by following sociocultural constructivist theories of learning, recognizing multiliteracies, and making use of multimedia and the internet to instill in learners a sense of agency. This agency is reflected in the shifting of roles in educational settings.

3 *New Roles*

Foucault’s (1995) discourse on power identified surveillance and discipline as agents of normalization, intended to produce “the obedient subject, the individual subjected to habits, rules, order; an authority that is exercised continually around him and upon him and which he must allow to function automatically in him” (p. 128-129). As well as this aptly describes the panoptical prison, it similarly depicts the traditional school system, where “rather than being in control of the process students have been ‘subjects’ on the receiving end” (Harris 1994: 65). Specifically, the traditional setting for a class is a physical classroom, where learners are expected to be “‘in residence’-to be part of the spatially defined community...with academic timetables, classroom schedules, and calendars” (Mitchell 1996: 67). They have been expected to sit facing their instructor, passively listen and take notes. The direct result is one of *pedagogical ecology*, or physical classroom, influencing *pedagogical isomorphism*, or standard teaching practices (Jaffee 2003).

But the online ‘classroom’ does not fit standard notions of space and time. What is referred to as *cyber-space* or virtual reality is probably closer to what Castells (2000) dubbed *real virtuality*, where time and space are inseparable, leaving an impression of *timeless-time* and *placeless-space*. Thus, following Jaffee’s notions, by removing physical space, practices change. According to Brown (2005), the process of learning in

formal educational settings has indeed become increasingly participatory, possibly the result of a flattening of the hierarchy typical in environments utilizing text-based computer-mediated communication, where familiar identifying markers (e.g., age, gender, ethnicity) have been removed (Spears and Lea 1994). In addition, following economic theory, through the medium of the internet, students who were once considered strictly consumers of instruction have been granted the ability to produce, or to customize their own learning experience (Gee 2003). This is reflected in the resultant role-shifts of both instructors and learners.

As mentioned, the traditional classroom was teacher-centered. The instructor's role was to transmit knowledge to students, typically via lecture (Bonk and Cunningham 1998). Now, however, the instructor is less likely to be a *sage on the stage* than a *guide on the side*. In other words, the instructor's role is more that of coach, supporter or moderator than lecturer (Berge 1995; Bonk and Cunningham 1998; Shneiderman 2002; Shneiderman et al. 1998). Where "the role of the e-moderator is one of process designer and promoter and mediator of the learning, rather than content expert" (Salmon 2002: 4), the role of the e-learner is likewise changed. Student-centered, collaborative e-learning encourages greater learner autonomy, shared responsibility and egalitarianism. Further, it is more interactive and participatory than the traditional class. Such an environment may actually be expected from so-called *digital natives* who have grown up with technology (Prensky 2001) and, as such, are accustomed to interactive and participative media (e.g., virtual worlds like *Second Life*) and used to having a web presence, as reflected in the burgeoning of social networking sites (e.g., *My Space*).

The aforementioned roles can also be increasingly found in CALL, which has been uniquely effected by the internet. Use of computer-mediated communication alone has had profound impact. Synchronous chat, for instance, has the potential to unblock affective filters which inhibit language production through the provision of a less stressful learning environment (Chun 1998). Further, it has been shown to increase rates of participation by language learners by essentially making discussions more egalitarian to members of varied social groups (Warschauer 1996). A range of other benefits have been summarized by Swaffar (1998), who indicates that—in comparison to face-to-face interactions—"[n]etworked exchanges seem to help all individuals in language classes engage more frequently, with greater confidence, and with greater enthusiasm in the communicative process than is characteristic for similar students in oral classrooms" (p. 1). In other words, learners are playing a more active role in their education. The emphasis on interactivity and student autonomy, frequently cited as one of the optimal conditions for language learning (Egbert et al. 1999), makes it a particularly well-suited medium for language instruction.

4 *New Goals*

Shneiderman (2003) regards these role-shifts as part of a greater shift from the *old education*—which emphasized the acquisition and memorization of facts and competitiveness amongst students—to the *new education*—which emphasizes critical and analytic thinking and student collaboration. Another major shift in education since the inception of the internet is meaningful, project-based learning. Indeed,

apprenticeship has a long history in educational theory. Dewey's (1916) pragmatism stressed *learning by doing*. Bruner (1960) wrote that "[i]nterest in the material is the best stimulus to learning, rather than such external goals as grades or later competitive advantage" (p. 14). More recently, Lave and Wenger (1991) have described *situated learning* and *legitimate peripheral professionalism*, where newcomers join *communities of practice* where they learn *to talk* rather than learning *from talk*, in the traditional sense. Shaffer (2003) amends this notion of professional praxis as one which "focuses on communities of practice not as a means to an end, but as an end in themselves" (p. 41). But access to the internet and other information and communication technologies make these ideas increasingly relevant.

The push/pull nature of the internet allows users not only to seek out and retrieve information, but also to receive it from other users. Through use of interactive communications programs, a virtual encyclopedia of information and search engines, and web publishing tools, not only are learners more able to participate professionally (Shaffer 2004), they are also empowered to identify and study topics of direct interest to them (Lemke 1998). Well designed virtual worlds, for example, provide what Gee (2005) calls *distributed authentic professionalism*, where practice is contextualized, and meaning is "situated in embodied experience" (Gee 2003: 108). Brown emphasizes learning the tacit *know-how* as well as the explicit *know-what* (2001) and *learning-to-be* as well as *learning-about* (2005). Cognitive apprenticeship and e-mentoring sites such as the web-based Electronic Emissary Project are designed to bring "tacit processes into the open, where students can observe, enact, and practice them with help from the teacher" (Brown et al. 1989; Collins et al. 1987: 4). *Passion-based learning* encourages such meaningful engagement with content experts (Brown 2005).

Perhaps the definitive model of these notions of web-based constructivist, meaningful, project-based learning is Schneiderman's (1998; 2002) *relate-create-donate* philosophy of education, where learners work in teams to develop authentic projects for—and with—professional clients. Projects are supported through the use of computer-mediated communication (e.g., email, listservs), which fosters anytime, anywhere collaboration, and web-based publishing tools for posting final products.

With respect to CALL, availability of the internet has corresponded to growth in project-based, task-based and content-based language instruction, as well as special purposes language courses, in particular English for Specific Purposes (e.g., business) and English for Academic Purposes (Warschauer and Healey 1998). In other words, the focus on use of language in authentic contexts has corresponded to access to authentic materials, environments and information.

Friedman (2006) dubbed the modern era *Globalization 3.0*, which has to do with the individual and is the result of ten technological innovations, which he calls global flatteners. One of these flatteners is *in-forming*, which "is about self-collaboration—becoming your own self-directed and self-empowered researcher, editor, and selector of entertainment, without having to go to the library or movie theater or through network television" (p. 153). On the internet, language learners have at their disposal the most

comprehensive and multimedia encyclopedia ever. This makes it particularly well-suited to such content-specific and goal-oriented courses.

5 *What Next?*

Spurred by access to a host of authentic content, information, and communication and production tools, the advent of the internet has led to a significant growth in the field of CALL (Terrill 2000). Moreover, technology is becoming increasingly integrated into language classrooms, a trend which Warschauer (2004) predicts will continue, such that by the early part of this century, there will be a complete “movement of CALL from the language laboratory to the classroom” (p. 5). Adapting Warschauer’s Integrative CALL, Bax (2003) aspires towards an *Integrated* CALL which has become so normalized as to be invisible in the classroom, such that it no longer requires its moniker, CALL, in the same way as there is no need to refer to a specialized usage of pens or books as PALL or BALL, respectively. Thorne and Payne (2005) similarly forecast a gradual shift towards a *device-agnostic CMC* in CALL (p. 386).

All envisage Rheingold’s (2002) technologically pervasive world of *informed places*, *smart rooms* and *digital cities*, where media and information are embedded in the environment; *sentient objects* which inform and communicate; *tangible bits* which manipulate the environment; and *wearable devices* worn as cybernetic clothing which can sense, compute and communicate. Technology is indeed approaching such omnipresence, but it has not yet “completely integrated into all other aspects of classroom life, alongside coursebooks, teachers and notepads” (Bax 2003: 24). One reason is simply that it has not advanced enough for popular release. Perhaps a more significant obstacle is a lack of access.

6 *The Digital Divide.*

The internet has been touted as the great equalizer (Coombs 1998; Maibach 1999), and in many ways it probably has been just that. However, unlike mobile phones, whose usage in the developing world has surpassed that in the so-called developed world (Sullivan 2006), access to the internet is still restricted from many aspiring language teachers and learners. Traditionally, this lack of access has been referred to as a digital divide, a dichotomy of *haves* and *have-nots*, which implies that the problem is simply a lack of technology itself (e.g., hardware, networking). Indeed, it is this notion of limited access that has spurred brilliant computer scientists such as Nicholas Negroponte and Raj Reddy to develop \$100 laptops and PCtv (PC, TV, video, telephone) units, respectively, for international consumption, and for others (James 2001a; 2001b) to propose an organized redistribution of available low-cost technologies.

Such a conception, however, oversimplifies the issue. First, there are gradations between the so-called *haves* and *have-nots*. Warschauer (2003) likens access to information and communication technologies (ICT) to literacy, pointing out that in any given place there is a range of literacy practices, not merely those who are literate and those who are not. Moreover, there are also multiple types of access. Van Dijk (2005) recognizes this deeper complexity involved in defining access, arguing that it is not merely access to material, but also access to motivation, skill and usage. In other

words, a given individual, institution, or nation may have physical access to the internet or other technologies, but

- may not want it
- may not have sufficient (multi)literacy practices (New London Group 2000) to know how to use it
- or may not have the occasion to use it.

DiMaggio et al. (2004) add to Van Dijk's list autonomy of use (i.e., control over access) and availability of social support, stressing *digital inequalities* over digital divides.

Given widespread internet access, at least in the so-called developed world, there has been more recent emphasis on a supposed *second-level* (Hargittai 2002), *next* (Besser 2001) or *real* (Gandy 2002) digital divide, one which speaks to the inabilities of learners to locate and critically evaluate appropriate information on the internet, and encourages active production and distribution of content, not merely consumption of it (i.e., ICT literacy practices). The responsibility for imparting these skills befalls all educators, language instructors and teacher trainers included.

7 Open Source

According to Castells (1998), the lack of access to technology is a product of social exclusion, and those without it are *living in the fourth world*. Inversely, having access can potentially influence social inclusion and social capital (Warschauer 2003). In other words, the ultimate goal in providing access is not to possess technology for the sake of itself, but to gain access to the services this technology can help to provide (e.g., education, health care, government).

The internet offers a range of possibilities to provide such assistance to teachers and trainers aspiring to integrate (greater) technology into their instruction. Community-developed software, of which there are two general types, is just one example.

- *Open source* software is the type which emphasizes *intellectual commons*, which means software source code is freely redistributed and modified, so long as derived works acknowledge the original developer(s).
- *Free* software, on the other hand, is, as the name implies, software which is freely redistributed and modifiable, so long as it remains free.

(The difference between the two is generally philosophical and perhaps significant only to software developers.) Operating systems (e.g., Linux), browsers (e.g., Firefox) and office suites (e.g., OpenOffice) are just a few examples of what is currently available for free distribution. As a result of their low cost and high quality, several nations (e.g., Croatia, Venezuela) have allegedly adopted official Free/Libre/Open Source Software (FLOSS) policies (Proffitt 2002; Vervloesem 2006), and larger bodies such as the United Nations (Tong 2004) and European Commission (Thurston 2007) are issuing endorsements of open source products. *Open content* (e.g., Global Text Project) provides free textbooks to developing countries. And *open courseware* (e.g., MIT Open Courseware) offers free lectures, lessons, and curricula.

South Africa's national curriculum in its entirety is even available on WikiBooks.

Recognizing the aforementioned complex notion of access, an added benefit of open movements such as these are that they not only offer adaptable professional resources,

but also free training on how to use them and opportunities to interact with the experts who developed them.

8 Conclusion

Salmon (2004) has presented a future where "terrestrial universities and corporate training facilities have disappeared" (p. 141). Kerr (1996) has contrarily written that "those who suggest that schools as institutions will soon 'wither away' are unaware of the historical flexibility of schools as organizations". While it is not clear exactly how language education and teacher training will appear in the future, what is apparent is that the internet will continue to adapt and expand globally (see Shannon 2006), so as to offer greater opportunity for learners to interact, collaborate, research, and produce. And increased occasions for language teachers and teacher trainers to help them to exploit these opportunities.

References

- Bax, S. 2003. CALL-past, present and future. *System* 31 (1): 13-28.
- Berge, Z. L. 1995. Facilitating computer conferencing: Recommendations from the field. *Educational Technology* 15 (1): 22-30.
http://www.emoderators.com/moderators/teach_online.html (accessed January 21, 2007).
- Besser, H. 2001. The next digital divides. *Teaching to Change LA*.
<http://www.tcla.gseis.ucla.edu/divide/politics/besser.html> (accessed January 21, 2007).
- Bonk, C. J. and D. J. Cunningham. 1998. Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In *Electronic Collaborators: Learner-centered Technologies for Literacy, Apprenticeship, and Discourse*, eds. C. J. Bonk, and K. S. King, 25-50. Mahwah, NJ: Erlbaum.
- Brown, J. S. 2000. Growing up digital: How the web changes work and education and the ways people learn. *Change* March/April, 11-20.
- Brown, J. S. 2005. New learning environments for the 21st Century. In *Aspen Symposium 2005: Exploring the Future of Higher Education*, ed. M. E. Devlin, ch. 4. Cambridge, MA: Forum for the Future of Higher Education.
- Brown, J. S., A. Collins and S. Duguid. 1989. Situated cognition and the culture of learning. *Educational Researcher* 18 (1): 32-42.
- Bruner, J. 1960. *The Process of Education*. Cambridge, MA: Harvard University Press.
- Castells, M. 2000. *The Rise of the Network Society. The Information Age: Economy, Society and Culture (Vol. 1)*, 2nd ed. London: Blackwell.
- Chun, D. 1998. Using computer-assisted class discussion to facilitate the acquisition of interactive competence. In *Language Learning Online: Theory and Practice in the ESL and L2 Computer Classroom*, eds. J. Swaffar, S. Romano, P. Markley and K. Arens, 57-80. Austin, TX: Labyrinth Publications.

- Collins, A., J. S. Brown, and S. Newman. 1989. Cognitive apprenticeship: Teaching the craft of reading, writing, and mathematics. In *Knowing, Learning and Instruction: Essays in Honor of Robert Glaser*, ed. L.B. Resnick, 453-494. Hillsdale, NJ: Erlbaum.
- Coombs, W. T. 1998. The internet as potential equalizer: New leverage for confronting social irresponsibility. *Public Relations Review* 24 (3): 289-303.
- Dewey, J. 1916. *Democracy and Education: An Introduction to the Philosophy of Education*. New York: Macmillan.
- DiMaggio, P., E. Hargittai, C. Celeste and S. Shafer. 2004. Digital inequality: From unequal access to differentiated use. In *Social Inequality*, ed. K. Neckerman, pp. 355-400. New York: Russell Sage Foundation.
- Egbert, J., C. Chao, and E. Hanson-Smith. 1999. Computer-enhanced language learning environments: An overview. In *CALL Environments: Research, Practice, and Critical Issues*, ed. J. Egbert and E. Hanson-Smith, 1-13. Alexandria, VA: TESOL.
- Foucault, M. 1977, 1995. *Discipline and Punish: The Birth of the Prison*, 2nd ed. New York: Vintage.
- Friedman, T. 2005. *The World is Flat: A Brief History of the Twenty-first Century*. New York: Farrar, Straus and Giroux.
- Gandy, O. H. 2002. The real digital divide: Citizens versus consumers. In *Handbook of New Media: Social Shaping and Consequences of ICTs*, eds. L. A. Lievrouw and S. Livingstone, 448-460. Thousand Oaks, CA: Sage Publications.
- Gee, J. P. 2003. *What Video Games Have to Teach Us about Learning and Literacy*. New York: Palgrave Macmillan.
- Gee, J. P. 2005. What would a state of the art instructional video game look like?" *Innovate* (August/September).
<http://www.innovateonline.info/index.php?view=article&id=80>
 (accessed January 22, 2007).
- Hargittai, E. 2002. Second level digital divide: Differences in people's online skills. *First Monday* 7 (4). http://www.firstmonday.dk/issues/issue7_4/hargittai/ (accessed January 21, 2007).
- Harris, S. 1994. Entitled to what? Control and autonomy in school. *International Studies in Sociology of Education* 4 (1): 57-76.
- Jaffee, D. 2003. Virtual transformation: Web-based technology and pedagogical change. *Teaching Sociology* 31 (2) 227-236.

- James, J. 2001a. Bridging the digital divide with low-cost information technologies. *Journal of Information Science* 27 (4): 211-217.
- James, J. 2001b. Low-cost computing and related ways of overcoming the global digital divide. *Journal of Information Science* 27 (6): 385-392.
- Kerr, S. 1996. Toward a sociology of educational technology. In *Handbook of Research on Educational Communications and Technology*, ed. D. Jonassen, 113-142. New York: MacMillan.
- Lave, J. and E. Wenger. 1991. *Situated Learning. Legitimate Peripheral Participation*. Cambridge: University of Cambridge Press.
- Lemke, J. L. 1998. Metamedia literacy: Transforming meanings and media. In *Literacy for the 21st Century: Technological Transformation in a Post-typographic World*, eds. D. Reinking, M. C. McKenna, L. D. Labbo and R. D. Kieffer, 283-302. Mahwah, N.J.: Lawrence Erlbaum Associates.
- Maibach, M. C. 1999. The internet: The great equalizer. *Economic Reform Today* 2: 33-38.
http://www.cipe.org/publications/ert/e32/e32_3.pdf (accessed January 23, 2007).
- Mitchell, W. J. T. 1996. *City of Bits*. Cambridge, MA: MIT Press.
- New London Group. 2000. A pedagogy of multiliteracies: Designing social futures. In *Multiliteracies: Literacy Learning and the Design of Social Futures*, eds. B. Cope and M. Kalantzis, 9-38. London: Routledge.
- Prensky, M. 2001. Digital natives, digital immigrants. *On the Horizon* 9 (5).
<http://www.marcprensky.com/writing/> (accessed January 20, 2007).
- Proffitt, B. 2002. Venezuela's government shifts to open source software. *Linux Today*, August 30. <http://www.linuxtoday.com/> (accessed January 24, 2007).
- Rheingold, H. 2002. *Smart Mobs: The Next Social Revolution*. Cambridge, MA: Perseus Publishing.
- Salmon, G. 2002. *E-tivities : the key to active online learning*. London: Kogan Page.
- Salmon, G. 2004. *E-moderating: The Key to Teaching and Learning Online*, 2nd ed. New York: RoutledgeFalmer.
- Shaffer, D. W. 2003. Pedagogical praxis: Using technology to build professional communities of practice. *Association for Computing Machinery (ACM) SigGROUP Bulletin* 24 (3): 39-43.
- Shaffer, D. W. 2004. Epistemic frames and islands of expertise: Learning from infusion experiences. In *Proceedings of the Sixth International Conference of the Learning Sciences*, eds. Y. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon and F. Herrera, 473-480. Mahwah, NJ: Erlbaum.
- Shannon, V. 2006. A 'more revolutionary' web. *International Herald Tribune*, May 24.
<http://www.iht.com/> (accessed January 24, 2007).

- Shneiderman, B. 1998. Relate-create-donate: A teaching/learning philosophy for the cyber-generation. *Computers & Education* 31 (1): 25-39.
- Shneiderman, B. 2002. *Leonardo's Laptop: Human Needs and the New Computing Technologies*. Cambridge, MA: MIT Press.
- Shneiderman, B., E. Y. Borkowski, M. Alavi and K. Norman. 1998. Emergent patterns of teaching/learning in electronic classrooms. *Educational Technology Research and Development* 46 (4): 23-42.
- Siemens, G. 2005. Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning* 2 (1).
http://www.itdl.org/Journal/Jan_05/article01.htm (accessed January 23, 2007).
- Spears, R., and M. Lea. 1994. Panacea or panopticon? The hidden power in computer-mediated communication. *Communication Research* 21 (4): 427-459.
- Sullivan, K. 2006. In war-torn Congo, going wireless to reach home. *Washington Post*, July 9, A01. <http://www.washingtonpost.com/> (accessed January 23, 2007).
- Swaffar, J. 1998. Networking language learning: Introduction. In *Language Learning Online: Theory and Practice in the ESL and L2 Computer Classroom*, eds. J. Swaffar, S. Romano, P. Markley and K. Arens, 1-15. Austin, TX: Labyrinth Publications.
- Terrill, L. 2000. *The benefits and challenges in using computers and the internet with adult English language learners*. Washington, DC: NCLE.
http://www.cal.org/caela/esl_resources/usetech.html (accessed January 22, 2007).
- Thorne, S. L. and J. S. Payne. 2005 Evolutionary trajectories, internet mediated expression, and language education. *CALICO Journal* 22 (3): 371-397.
- Thurston, R. 2007. European Commission vouches for open source. *CNET News.com*, January 17. <http://news.com.com/> (accessed January 24, 2007).
- Tong, T. W. 2004. *Free/open source software education*. New Delhi: Asia Pacific Development Information Programme.
- Van Dijk, J. A. G. M. (sic) 2005. *The Deepening Divide: Inequality in the Information Society*. Thousand Oaks, CA: Sage Publications.
- Vervloesem, K. 2006. Croatian government adopts open source policy. *NewsForge*, August 22.
<http://www.newsforge.com/> (accessed January 24, 2007).
- Warschauer, M. 1996. Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal* 13 (2): 7-26.
- Warschauer, M. 2003. *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: MIT Press.

- Warschauer, M. 2004. Technological change and the future of CALL. In *New Perspectives on CALL for Second and Foreign Language Classrooms*, eds. S. Fotos and C. Brown, 15-25. Mahwah, NJ: Lawrence Erlbaum Associates.
- Warschauer, M. and D. Healey. 1998. Computers and language learning: An overview. *Language Teaching* 31: 57-71.
- Zinn, L. M. 1991. Identifying your philosophical orientation. In *Adult Learning Methods*, ed. Galbraith, 39-77. Malabar, FL: Krieger Publishing Company.

The Author

George M. Chinnery is an English language instructor, e-teacher trainer, and PhD candidate in Language, Literacy and Culture at the University of Maryland Baltimore County (UMBC), USA. His research and practical interests include the cross-cultural uses of information and communication technologies; e-language learning and e-teacher training; and the global digital divide.
george@chinnery.us