

EMERGING TECHNOLOGIES

Messaging, Gaming, Peer-to-peer Sharing: Language Learning Strategies & Tools for the Millennial Generation

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Marc Prensky likes to [characterize](#) the members of the millennial generation as "Digital Natives," for whom the Internet and new forms of digital communication are second nature, in contrast to the older "Digital Immigrants," who may have adapted to new technologies and tools, but don't have the same familiarity, commitment, or comfort level. The next generation's enthusiasm for instant messaging, videogames, and peer-to-peer file swapping is likely to be dismissed by their elders as so many ways to waste time and avoid the real worlds of work or school. But these activities may not be quite as vapid as they may seem from the perspective of outsiders -- or educators. Researchers point not only to such obvious by-products as computer literacy, communicative skills, and community building, but to less immediately evident benefits like identity creation (avatars in games/chat), collaborative learning (networking to develop game playing strategies), or even mentoring (helping others in game strategies or game-related fiction writing). Clearly these are aspects of the net generation's created "third space" (neither home nor school/work) which are central to many of their lives and which could prove instructive for educators seeking ways to connect to their students. While none of these technologies was developed to support language learning, they are being used for that purpose, sometimes directly, sometimes as a side benefit. Given the wide-spread acceptance and use by students of these technologies, it may be of interest to examine some of the ways in which they are being adapted for use in formal and informal language learning.

Instant Messaging and Mobile Communication

The use of pen pals for language practice and intercultural learning has a long history. Today email exchanges and tandem partners continue that tradition. Services such as [ePals](#) or [eTandem](#) facilitate the process of finding partners. The eTandem best practices [document](#) points to a variety of ways partners can communicate: e-mail, fax, telephone, video conferencing. Not highlighted (but mentioned in other contexts) is a means of communication that has become as ubiquitous to many young people as e-mail: instant messaging (IM). Despite continued issues with interoperability among different IM networks and programs, this has become a very widely used form of communication. In the United States, [AIM](#) (from AOL) continues to be the most popular system; in the rest of the world, [MSN](#) (from Microsoft) and [ICQ](#) are widely used. There have been several attempts to create an IM tool accessible to all systems, [GAIM](#) being one of the more recent projects allowing the user to login to multiple systems with a single interface. The nature of IM exchanges dictates particular language usage (short utterances, heavy use of abbreviations and code words, emoticons, and other symbols), especially if one considers that it is not uncommon for users to have multiple IM sessions running simultaneously. Because it is a synchronous medium, IM simulates face-to-face conversation, particularly in its informality.

Some language instructors are [sending their students](#) out to find IM partners, recognizing that this is a tool students know and like to use. IM is often used in conjunction with other means of communication, its spontaneity being balanced by the more deliberate writing of e-mail or blogs. Many IM programs also now support audio exchanges in addition to text-based communication. Programs such as [iChat](#) or [Trillian](#) (and [others](#)) support video as well, if digital video cameras are being used by the participants. Most IM tools allow the capture of IM sessions, which may be of interest in a language learning environment. IM is not just a stand-alone activity, but rather a function that is incorporated into many on-line environments such as Learning Management Systems or multiplayer games. The multitasking prowess needed for

IMing while gaming or engaged in other online tasks points to the one of the new kinds of literacies evolving among and through the Digital Natives.

Of great popularity among young adults as well is messaging on mobile phones, by way of SMS (short message service). SMS has been used for years in Europe and Asia and is beginning to be more widely known in the USA. While it is considerably more difficult to enter text on a mobile phone than it is on a computer, mobile text messaging has begun to be used in support of language learning. The BBC World Service's English section has been [using SMS](#) in conjunction with radio broadcasts of English language programs in French-speaking West Africa. There is also a [project](#) underway using SMS to deliver English instruction in China. In Europe, the EU has funded a major initiative called [m-learning](#) which uses mobile phones to reach young adults who have not done well in traditional learning environments. The idea is that through the use of the ubiquitous mobile phone one may be more likely to engage young learners in a time (of their choosing) and a place (away from formal institutional settings) more conducive to their learning preferences. The m-learning infrastructure is quite sophisticated, incorporating its own Learning Management System and speech/text tools. Among the m-learning projects underway are a Finnish language learning [program](#) (grammar and pronunciation) and Java-based [review exercises](#) from Great Britain. More and more Java-enabled phones are being sold, although they vary in memory and screen display size. [Nokia](#), the leading mobile phone vendor, currently has some 20 models which support Java. Java support is of interest since it enables interactivity and could be used to create learning games playable on mobile phones. Marc Prensky [lists](#) a number of other examples of cell phone use in language learning.

One of the more interesting new uses of mobile devices is moblogging or mobile blogging. Dave Winer, a well-known blogger and programmer, [defines](#) it this way: "Moblogging is any activity that occurs away from your normal blog-writing place whose purpose is to create content for your blog." The idea is that new posts to a blog can come from a digital camera, PDA, or cell phone, with text and/or pictures sent through wireless networks to update a blog. This becomes particularly compelling now that so many mobile phones also sport digital cameras, and some include the ability to shoot short videos. Blogging software, such as [TypePad](#), have made it relatively easy to moblog. [Kablog](#) is a tool for use with the popular [Movable Type](#) blog software. As opposed to other services which send the new entry by e-mail or text messaging, Kablog allows users to log on directly to their sites for updating. Nokia has developed new software ([Lifeblog](#)) to enable blog posting from Nokia phones. The possibilities for moblogging in on-line journals (study abroad!) or field trips are compelling.

Peer-to-Peer Networking and the iPod Phenomenon

The surprising standout commercial success among small electronic devices recently has been the [iPod](#), Apple's digital music player. While Apple has had success in selling digital music (with its own proprietary digital rights management) through its [iTunes](#) music store, the initial popularity of the iPod was built on the wide-spread sharing of music files through the original Napster and subsequent peer-to-peer (P2P) networks ([FastTrack](#), [Gnutella](#), [Bittorrent](#)). Despite law suits and crackdowns on file swapping at many universities, P2P network file swapping [remains wide-spread](#), with free downloads of music still at many times the rate of sales of digital music through iTunes and other on-line music services, according to [most estimates](#). Although some language educators have [recommended](#) use of P2P for sharing of teaching resources, it has not been widely used for that purpose, due perhaps to the discrediting of the P2P process (through copyright infringements) and of P2P software (through intrusive adware and spyware). One interesting example, however, is the built-in P2P functionality of the Canadian [LLEARN](#) project for learning French (at the secondary school level). It is being used as part of the learning infrastructure to provide students a means to find and exchange resources.

The P2P system which has generated the most buzz lately is [Bittorrent](#), which is particularly well-suited for transferring large files, since it enables files to be transferred in smaller chunks from a variety of

sources. Some software is being distributed now in this way (including [language software](#)), as well as media such as [films](#) from independent filmmakers. An interesting example of the use of BitTorrent is Fugu Tabetai's large [collection](#) of annotated Manga stories (over 4,000 pages), for learning Japanese. One of the powerful possibilities for using a P2P like BitTorrent is the potential integration of digital rights management to identify legal use and of [RSS](#) (Really Simple Syndication) to enable searching and retrieving. As is, BitTorrent is not a good way to circumvent copyright since IP addresses for downloaders and uploaders can be tracked.

Most digital music is encoded in the MP3 format, whose ubiquity, relatively small file size, and easy transferability to portable devices has been a [boon](#) to language learning. Many Web sites providing language learning resources feature audio in MP3 format (for learning, for example, [Farsi](#), [Italian](#), [French](#)). Several projects (such as one at the [University of Washington](#)) are in the works for equipping language labs with iPods or other digital music players, enabling untethered access to audio files for language learning. The Grand Island School District (Nebraska) has been [using iPods](#) with students learning English, mostly for help in improving pronunciation. This past fall, Duke University [provided iPods](#) to all members of its entering class. A variety of iPod uses for instruction are being explored there. In [Spanish classes](#), students are able to listen to audio versions of texts they read, play back instructors' comments on assignments and assessments, review new vocabulary and its pronunciation, and of course listen to Spanish language music. The iPods are equipped with microphones, thus allowing students to record conversations and keep audio diaries. One of the benefits of using the iPod is its syncing capability with desktop or laptop computers, making it easy to transfer files. Another benefit of the iPod is one it shares with cell phones portable use in any environment the user chooses.

While the MP3 player began as a device solely dedicated to playing music, Apple has, since the iPod's introduction in 2001, added additional capabilities such as personal calendars, games, and notes. The [notes function](#) is of particular potential interest to language teachers -- it uses HTML as well as Unicode encoding. This allows for formatting of the text but also linking of files to one another, as well as to music files stored on the iPod. The free iPod [eBooks Creator](#) transforms text files into notes for use on an iPod. This capability of the iPod has been used to create software such as the Talking Panda [iLingo](#), which offers basic language tutorials in seven languages. Apple has recently introduced the [iPod photo](#), which features a color screen and the capability of displaying digital photos. This adds the possibility of creating audio slide shows, displayable on the iPod or shared through connection to an external video display. While the iPod is currently the market leader, there are many more [digital music players](#). Unfortunately, the rights management systems, file formats, and add-on capabilities of the different players are not standardized or compatible. Of course, the iPod as a digital device for doing anything other than playing music is a poor cousin to full-featured Palm or PocketPC handhelds. But PDAs have not achieved the wide distribution of MP3 players.

Gaming

Parents of teenagers who spend inordinate amounts of time finding treasure, zapping evildoers, and exploring imaginary worlds may take a dim view of electronic games and be skeptical about any potential benefit to their children. Nevertheless gaming is attracting the interest of educators and researchers, in part because it does consume so much of the time of young people today, at least in the industrial world. Researchers are studying this phenomenon, often by participating themselves in multiplayer online games, and are arriving at some surprising findings. Constance Steinkuehler, from the University of Wisconsin, [has found](#) that multiplayer online games are "sites for socially and materially distributed cognition, complex problem solving, identity work, individual and collaborative learning across multiple multimedia, multimodality 'attentional spaces' (Lemke, n.d.), and rich meaning-making and, as such, ought to be part of the educational research agenda" (pp. 15-16). She argues that given the time young people spend in such environments and their importance for socialization, enculturation and leaning, at the least they should be studied.

Another researcher at the University of Wisconsin, Rebecca Black, has [examined](#) the interactions among participants in a Web community dedicated to anim  fans. As is the case with many videogaming and fan sites, there is a good deal of reading and writing throughout this site. For the site she examines ([cardcaptor.com](#)), for example, participants create "fanfiction," extending the stories of the anim  characters. Although the stories have Japanese or Chinese backgrounds, the fan contributions are written in English, often by non-natives. Black examines how the community of fans helps with writers' English language skills and with cross-cultural understanding. She points to ways in which this "third space" may provide adolescents -- especially those who are marginalized -- with means of finding help and encouragement for creative activities and self-improvement. She demonstrates how supportive the online community is for writers struggling to express themselves. In turn, she argues, these kinds of non-traditional (and unsanctioned) literacy practices help young people construct identity and develop community.

In addition to this kind of peer-to-peer learning, some language instructors have leveraged students' interest in gaming to create activities tied to students game playing. Douglas Coleman (University of Toledo), for example, has used the game SIM COPTER as a [basis](#) for giving directions, as well for peer review of writing. The ESL students take on the role of a helicopter pilot and are given tasks to perform such as to find a given location and write directions. They will then re-enter the game as another character and try to follow the directions a classmate has created. Others have created their own games, such as [Zip & Terry](#), designed to teach children English. The story revolves around an alien names Zip who crashes into the home of the Broccoli family and must learn English to fix his spaceship and get back to his home planet. The learner is put into the role of Zip and must interact with the Broccoli family and others in English. This game is a simplified version of what is being called a "[serious game](#)." There is currently a lot of net activity around this concept (also called [social impact games](#)), including a recent [summit](#), an active [Wiki](#) and [blog](#), and an ambitious [project](#) partnering Microsoft and the Massachusetts Institute of Technology. The central idea behind serious gaming is the promotion and creation of videogames for use in education and corporate or military training. The U.S. military has invested a good deal of work in the creation of serious games, such as the [Mission Rehearsal Exercises](#) (created at the University of Southern California).

Of course there are many more language learning games and quite a bit of work has been done on creating and using simulations for language learning. However, there has not been the same degree of interest in the areas of massively multiplayer online games. This may be due to the newness of the widespread popularity of these games, but also perhaps to the negative reputation they enjoy as time-wasters, and to the complexity of their programming. Interestingly there are some intriguing parallels between gaming and language learning in the use of roles, improvisation, codes, and negotiated meaning. Multiplayer online games tend to encourage communication and cooperation. More research into how individuals in these environments express themselves, learn and contribute to a collective may point to some additional ways to harness gaming to language learning. If the millennial generation is increasingly drawn to the digital third spaces, it behooves us as language educators to do as we have done in the past, use technologies and tools intended for other uses, to create richer opportunities for language learning.

RESOURCE LIST

Language Partnering and Instant Messaging

- [Gaim](#) IM client
- [Trillian](#) IM client with audio and video capabilities
- [iChat](#) IM client from Apple
- [Instant Messaging Gets the Picture](#) article on integration of audio/video into IM
- [Internet Audio Communication for Second Language Learning: A Comparative Review of Six Programs](#) LLT article (January, 2003)

- [Some CMC clients promoting language learning through chatting online](#) from Vance Stevens
- [Instant Messaging \(IM\) and Chat Tools](#) from the e-Learning Centre
- [ePals](#) E-mail service with language translation technology
- [Language Learning in Tandem](#) for finding language learning partners
- [eTandem Europa](#) EU sponsored tandem learning project
- [Language Exchange Community](#) service for finding language partner
- [Diary Project](#) exchange of diary entries
- Mobile Communication and SMS
- [M-learning](#) EU-sponsored mobile learning project
- [M-learning project background](#) includes sample material
- [GCSE Bitesize Revision](#) resources for learning through mobile phones (from the BBC)
- [CTAD](#) cell phone based language learning products
- [New way to write essays](#) on using cell phones in writing and language learning
- [What Can You Learn From A Cell Phone? - Almost Anything!](#) by Marc Prensky

Moblogging

- [Moblogging](#) good intro to the topic of posting to blogs from mobile devices
- [Mfop2](#) Moblogging service
- [Textamerica](#) Moblogging service
- [AtomicLava](#) Moblogging service
- [Kablog](#) Moblogging tool
- [Photo Moblogging with the Treo 600](#) good description of how moblogging works
- [Nokia Edges Toward Phone Blogging](#) article in Wired

Peer-to-peer Networking, MP3s, and iPods

- [Comprehensive Japanese Software](#) distributed through Bittorrent
- [Online File Swapping Endures](#) article in USA Today
- [Song-Swap Networks Still Humming](#) article in Wired
- [Is P2P Dying or Just Hiding?](#) conference paper from Globecom 2004
- [Report: Universities Curtail Online Piracy](#) Associated Press story
- [Big Champagne](#) measures P2P sharing
- [The ABC's of Online Film Distribution](#) using Peer-to-peer networking

MP3s and iPods

- [iPods for the Language Learning Center](#) from the University of Washington
- [Building a Corpus of Comprehensible Text](#) about using MP3s (by Greg Thomson)
- [Technology: iPods](#) proposal by Laura Hale
- [iPods Assist with Spanish Accents](#) project at Duke University
- [iLingo](#) language translator for iPod
- [PocketMac iPod](#) free tool for syncing with iPod
- [MP3 Files Will Revolutionize Your Language Learning](#) by Reid Wilson
- [Language Impact's Language Learning MP3 Hub](#) sample MP3s for language learning
- [Audio books of Italian Literature](#) in MP3 format
- [Laguinquette](#) articles in French with MP3 audio
- [Easy Persian](#) incorporates MP3 audio
- [iPod eBooks Creator](#) tool for transforming text files into iPod notes
- [iPod Note Reader](#)

Videogaming and "Serious Games"

- [Language Games](#) from Link to Learning
- [Quest Atlantis](#) uses a 3D multi-user environment for teaching and learning

- [The Education Arcade](#) a consortium of game designers promoting educational uses of gaming
- [Games-to-Teach](#) partnership between MIT and Microsoft
- [Gaming to Learn](#) workshop sponsored by Mexcia X
- [Serious Games Initiative](#) use of games in education and training
- [Serious Games Wiki](#) good site for exploring the topic
- [EAF 228](#) education course structured to appear like a video game (by Rod Riegle)
- [Social Impact Games](#) catalog of "serious games"
- [Serious Games Summit](#) most recent: Oct, 2004
- [ELLS Project](#) joint American & Chinese language learning project using gaming
- [Simulation & Gaming](#) issue dealing with language learning
- [Polyglot: Linguistic Realism vs. Simplicity in RPG Gaming](#) language use in gaming
- [Simulation as a Language Learning Tactic](#) PDF format
- [ICONS](#) experimental Web-based simulation project
- [MMOG Research](#) links to papers by Constance Steinkueler on multiplayer online games
- [Papers on anime fanfiction](#) links to papers by Rebecca Black