

MULTILINGUALISM ON THE INTERNET

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According to a September 2004 compilation (Almanac 2004), the number of the world's population now online is approaching an extraordinary one billion. Fifteen countries account for about 70% of the total individuals online today. The United States has the largest single proportion online of any country, or 20% of the total. This reflects not merely its relatively large population size and advanced technological infrastructure, but also the fact that the technology that makes the Internet possible was created in the 1960's in the United States (O'Neill 1995; Hafner and Lyon 1996; Cringely 1998).

According to one estimate, already by 2003 roughly two-thirds of all Internet users were non-native speakers of English (CyberAtlas, 2003). Thus, native speakers of English no longer dominate, as they did for many years. In only four of the fifteen top countries online (the U.S., the U.K., Canada, Australia) in 2004 was English the official or dominant language. China and Japan together accounted for nearly another fifth of the total. Growth in the next few years is expected to accelerate especially in China. In short, hundreds of millions of people are participating online in languages other than English, or in some form of English, although they did not learn it as a first language.

Academic research published in English on the language of computer-mediated communication (CMC) has hardly begun to take account of this complex empirical reality. Most researchers have focused on emergent practices of native speakers of English (see, e.g., Herring, 1996, 2001), yet, wittingly or unwittingly, generalize about CMC *in general*. Exceptions are publications such as Naomi Baron's (2000) *Alphabet to Email* and David Crystal's *Language and the Internet* (2001) and *The Stories of English* (2004), which contextualize English-based CMC within the history of the English language.

To begin to address this lacuna in research on CMC, in September 2002 we distributed online a Call for Papers on the subject of "The Multilingual Internet: Language, Culture and Communication in Instant Messaging, Email and Chat." We received over 60 proposals, a clear indication of the timeliness of this neglected topic. In November 2003 we published a special issue of the *Journal of Computer-mediated Communication* with this title (Danet and Herring 2003). It contains eight commissioned papers dealing with 13 different languages online, including Arabic, Japanese, Chinese, Taiwanese, Thai, "Greeklsh" (Greek written in roman characters), French, German, Italian, Catalan, Spanish, Portuguese, and English as used by speakers of other languages. We are now editing an expanded book which will contain these papers and additional

commissioned chapters, some of which address additional languages and language situations (Danet and Herring in preparation).

Just as our special issue became available online, we learned of another journal issue about multilingualism (S. Wright 2004), by a team sponsored by UNESCO. There are some differences of emphasis in the two special issues. While our approach is academic, theirs is applied: their research is intended to guide language policy. Whereas all papers in their issue were authored by members of the same research team, our authors are a diverse group assembled by us. The emphasis of the UNESCO team is macro-sociological, and all papers are based on the same survey administered to students of English in 10 countries (Tanzania, Indonesia, the United Arab Emirates, Oman, France, Italy, Poland, Macedonia, Japan and Ukraine). In contrast, our emphasis is primarily on close empirical analysis of actual instances of communication online in a variety of CMC modes and linguistic contexts. Drawing on our own project as well as that of the UNESCO group and selected other sources, we review three topics in this paper:

- Writing systems and online communication
- Linguistic and discourse features of CMC in languages other than English
- Language choice online

Writing Systems and Online Communication

Because early planners of the Internet were generally American, and were implicitly thinking only about how to facilitate communication in English, they did not anticipate the problems that might arise when speakers of other languages tried to communicate online. The text-transmission protocol on the Internet is based on the ASCII character set. ASCII is an acronym for “American Standard Code for Information Interchange.” It was established in the 1960s, and contains 128 seven-bit codes (unique combinations of 1’s and 0’s), 95 of which are available for use. This character set is based on the roman alphabet and the sounds of the English language. The expression “plain text,” as in email and chat, refers to a format that contains only basic ASCII characters, whether written in English, or in some other language.

Problems engendered by the dominance of the ASCII character set online might lead some to speak of “typographic imperialism,” just as some authors have written in the past about linguistic imperialism (Phillipson 1992; Phillipson and Skutnabb-Kangas 2001). We prefer not to use such a loaded term, but to ask more neutrally: how have people communicating online in languages with different sounds and different writing systems adapted to the constraints of ASCII environments? What problems have they encountered, and what are the social, political and economic consequences if they have or have not adapted?

We know from English-based research that synchronous chat and even email and discussion list postings tend to have partially speech-like features (Yates 1996; Herring 1996, 2001; Baron 2000; Crystal 2001; Danet 2001, chap. 2). What happens when people using formerly spoken-only varieties of languages other than English participate in typed chat online?

This question is especially pertinent with regard to Arab countries, which are characterized by *diglossia* (Ferguson 1972): written, literary, classical Arabic co-exists with a local spoken variety that is ordinarily not written—at least not until the advent of the Internet. In a study of instant messaging among Gulf Arabic speakers in Dubai, David Palfreyman and Muhamed Al-Khalil found a fascinating mixture of Arabic script, English and romanized Arabic-- that is, *spoken Arabic written out in the Roman alphabet* (Palfreyman and Al-Khalil 2003). Also, they report a trend toward use of numerals to represent sounds of Arabic that cannot otherwise be represented in the roman alphabet, a phenomenon noted earlier for Egyptian Arabic by Mark Warschauer and colleagues (Warschauer, El Said, and Zohry 2002). Students at the university studied by Palfreyman and Al-Khalil used screen names or nicknames containing such numerals in a kind of “graffiti” or “expression wall.”

Increasingly, limitations imposed by the ASCII character set are disappearing. Developments in the creation of *Unicode* (Consortium 2003; Anderson 2004) are now greatly expanding the possibilities both for word processing and for communication online in an increasing number of the world's languages, making improvisational forms of adaptation such as those just discussed less and less necessary. Unicode is

the universal character encoding, maintained by the Unicode Consortium (<http://www.unicode.org/>). This encoding standard provides the basis for processing, storage and interchange of text data in any language in all modern software and information technology protocols.¹

While expansion of digital encoding possibilities is aimed both at archaic languages and at living ones, the latter are of primary interest here. In its latest version, Unicode can accommodate 96,000 different characters.

Linguistic and Discourse Features of CMC in Languages other than English: The Case of Japanese

As for the linguistic and discourse features of CMC in languages other than English, here, we present highlights of recent research on Japanese online. The case of Japanese is interesting because it is an Asian language with an unusually complex writing system. As Yukiko Nishimura (2003) explains, four scripts are used in standard Japanese orthography: 1) *kanji*, ideograms of

¹ This definition comes from the Unicode Home Pages, <http://www.unicode.org/glossary/>, retrieved January 6, 2004.

Chinese origin; 2) *hiragana* and 3) *katakana*, systems for representing syllables; and 4) *romaji*, use of the roman alphabet to transliterate Japanese words and to represent originally foreign terms, such as CD, in otherwise Japanese contexts. *Hiragana* is used for grammatical endings, and to represent Japanese concepts and objects for which *kanji* do not exist, whereas *katakana* is used for foreign names and the representation of natural sounds, i.e., the Japanese equivalent of “bow wow” for a dog barking.

In a study of BBSs (electronic bulletin boards) for fans of popular culture idols, Yukiko Nishimura (2003) compared linguistic and interactional aspects of postings with similar studies of English-language CMC. Her analysis revealed an interesting mixture of similarities to English, but also distinctive differences. Among the similarities she found evidence for multiple punctuation, eccentric spelling, use of all caps, written out laughter, verbal descriptions of actions, and *kaomoji* (“face marks”), vertical rough equivalents of Western-style “smiley” emoticons—the familiar :-) for a smile; :-(for a frown. Here is an example of a *kaomoji* from Nishimura’s material:

復活おめでと〜♪良かったね (* ^ ▽ ^ *)
hukkatsu omedeto ~♪yokatta ne (* ^ ▽ ^ *)
'Congratulations on your comeback♪[as if singing]That was good(* ^ ▽ ^ *) "

She notes, “This face mark represents the mouth wide open, laughing loudly and cheerfully, with asterisks used to indicate (rosy) cheeks.” Among Japanese-specific features, she found that users employed final particles, a feature usually associated with informal speech.² In this respect, they interacted with other users online as if they were in face-to-face conversation. Translated loosely into English, one example is, “Now my heart is full, full of Togashi [character in film]. He is cute, *isn't he?*”³

In the 1990’s a striking tendency toward playful performance in online communication was documented for many kinds of materials in English (Danet 1995, 2001; Danet, Ruedenberg, and Rosenbaum-Tamari 1998; Werry 1996). There was widespread play not only with identity (e.g., Bechar-Israeli 1995; Turkle 1995; Danet 1998), but with language and typography themselves, as, indeed, is already evident in the discussion above. An especially striking instance of play with typography—with the visual shape of typographic symbols--was a

² In Japanese, “particles appear primarily in spoken language, carrying neither referential nor denotational meaning, nor indicating grammatical relations.... Ne...contextualizes speakers' displays of alignment as a relevant concern for the participants over the developing course of ongoing interaction....speakers often use ne in situations where they explicitly express connectedness or ‘acknowledged contingency,’ i.e., an explicit coaxing or responsiveness to the other participants' immediately prior or immediately anticipated next action” (Morita 2003, abstract).

³ In other contexts this particle would be translated into English differently to make it idiomatic.

virtuoso simulation of smoking marihuana on IRC (Internet Relay Chat) documented in 1991, a small portion of which is shown below:

```
<Thunder> :| :| :\sssss :)  
<Kang> hheeeheee  
<Thunder> :-Q :| :| :\sssss :)  
<Thunder> heheheh
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(Danet 2001, p. 106)

Two players, nicknamed <Thunder> and <Kang>, adapt “smiley” icons and other typographic symbols in real time to represent the cigarette and the process of smoking. In the third line, <Thunder> has simulated the entire process, from taking the cigarette into his mouth (the letter “Q”), inhaling, exhaling, with multiple “s’s” to simulate the sound and graphic shape of the smoke, to the final smile of pleasure.

Recent research by Hirofumi Katsuno and Christine Yano, cultural anthropologists and Japanese studies specialists, suggests that playful performance via typography is even more elaborate in online Japanese than in English (Katsuno and Yano 2002, 2004). The researchers showed that the deployment of *kaomoji* online has important connections with Japanese popular culture, including *manga* (comics), a cult of cuteness, and a tradition of feminized handwriting. Whereas earlier *kaomoji* are typographically compact like Western “smileys,” Japanese women have developed a large repertoire of feminized, wider, “cuter” ones. According to the authors, expressive use of *kaomoji* in chat online helps Japanese housewives defuse their real-world frustrations (Katsuno and Yano 2004).

Western-style “smileys” were originally a male phenomenon. They were created and circulated in the early 1980s by Scott Fahlman and others in the computer science community at Carnegie Mellon University (Fahlman, n.d.). By the 1990s more and more females became involved with computers. In the West today, the use of “smileys” is primarily associated with young people and *females* (Witmer and Katzman 1997). They are reputed to be frowned upon on Usenet, and often considered a tell-tale sign that one is a “newbie.” Emoticons are often discouraged in serious online communication, and reputedly less used by older people in the West than younger ones. In contrast, even Japanese seniors use *kaomoji* online (Kanayama 2003). Moreover, Japanese-style emoticons were more than four times more common in four Japanese newsgroups than were Western-style “smileys” in four American ones (Sugimoto and Levin 2000, p. 145). Thus, this form of typographic expressivity is a distinctive form of emergent online culture in Japanese.

Language Choice

When participants have a choice of languages online, which ones do they choose and why? And do they have a choice at all? The factors affecting such

choices vary tremendously, depending on the technological and sociocultural context. Here, we review three quite different cases.

Switzerland has four national languages, German, French, Italian and Romansh, of which the first three are official languages used in government and federal administration. German is the mother tongue of the largest proportion of citizens, with French in second place. With regard to German, we have once again a situation of *diglossia*: a Swiss dialect of German is spoken in informal situations, but High German is used in writing and in formal spoken situations. English has slowly gained ground as a lingua franca since World War II (Dürmüller 2002; Durham 2003, 2004).

Mercedes Durham (2003) studied the languages used on a mailing list for Swiss medical students during four calendar years, 1999 to 2002. Most messages were monolingual and in English. There was dramatic change over time: in less than four years, English went from being used a little over 10% of the time to over 80% of the time. Although medical training is in English elsewhere, and many medical publications are in English, medical education is not conducted in English in Switzerland. Consequently, this cannot be a major reason for the shift to English. Durham argues that the main reason is that in Switzerland English is no one's native language, and ensures the widest possible comprehension among subscribers to the list. Native Italian speakers were even more likely to use English than native speakers of either French or German, because few people know their language.

Language choice online in the less developed world is a very different matter. Safari Mafu, a member of the UNESCO team, investigated the case of Tanzania (Mafu 2004), a country where large areas are not connected to the electricity grid. English played a central role in the country's colonial past. During British rule Africans were educated in Kiswahili, while Europeans and Asians were educated in English. After independence Kiswahili became the language of instruction but only at the elementary level.⁴ Kiswahili and English are both official languages.

While Internet use has grown in the last five years, only elites—government, universities—usually have access. For ordinary citizens, access is generally via a cybercafé, not a home computer. The government is not concerned that the main language used on the Web is English. The general level of proficiency in English is low. Although Mafu does not mention it, script per se is evidently not a problem in Kiswahili, as the roman alphabet is used.⁵ While the students and

⁴ "The former colonial territories of Tanganyika and Zanzibar gained their independence in 1962 and 1963, respectively. On 26 April 1964, they merged into one nation, the United Republic of Tanzania." The Languages of Tanzania: A Web Links Collection, <http://www.african.gu.se/tanzania/weblinks.html>, retrieved January 8, 2005. This site reports a total of 120 languages in Tanzania today.

⁵ The United Republic of Tanzania Website, Frequently Asked Questions. http://www.tanzania.go.tz/learn_kiswahilif.html. Retrieved January 11, 2005.

professionals interviewed reported some use of Kiswahili in email, English predominated in their Internet use, reflecting and perpetuating the functions of English as a language of wider communication.

At the regional level, the European Union (EU) currently has 25 member states and 20 official languages. Roumania, Croatia and Bulgaria are due to join in 2007, and Turkey is knocking at the door. All legislation is published in all official languages, The EU maintains a veritable army of translators for written documents and interpreters who perform direct and relay oral interpretation.⁶ As for the Internet, since 2001, citizens are encouraged to participate in online discussion, in a forum called Futurum, in languages of their choosing. Ruth Wodak and Scott Wright (Wodak and Wright 2004; Scott Wright 2004) investigated the languages actually used in Futurum. English was by far the main language used. Over 90% of all threads or topics introduced in English were conducted only in English. Threads introduced in other languages had greater diversity of languages used, but this trend was minor, compared to the overall dominance of English, and threads introduced in languages other than English tended to be shorter. These results jibe with general surveys conducted in 1998 and 2000, both of which found that far more Europeans speak English than any other language.⁷

What is the relation between the Internet and globalization? Is the Internet accelerating the global spread of English and other "big" languages at the expense of local, indigenous languages (Crystal 2003; Sue Wright 2004)? Is it contributing to the trend toward extinction of the latter (Nettle and Romaine 2000), and an overall reduction in global linguistic diversity (Herring 2002)? Or, conversely, can the Internet be an effective medium for the revitalization and preservation of "small" languages (Buszard-Welcher 2001)?⁸ In the case of Tanzania, over 100 minority languages have no representation on the Internet; Mafu's (2004) analysis suggests that this situation is not likely to change in the near future, since even Kiswahili is poorly represented, and basic problems of infrastructure persist.

For the foreseeable future, and for many different reasons, English will be the lingua franca of the Internet. At the same time, as Unicode progresses and the infrastructure underlying communication technologies spreads, large populations of the world will increasingly be able to spend more and more of their day online

⁶ See http://europa.eu.int/comm/translation/index_en.htm and http://europa.eu.int/comm/scic/interpreting/faq_en.htm, both retrieved January 11, 2005.

⁷ The 1998 survey found that nearly half of all Europeans spoke English, whereas only about a third spoke German, and less than that spoke French. The position of French and German was reversed in the 2000 survey, but English retained its dominance. See Eurobarometer (1999) and Eurobarometer (2001).

⁸ In January 2005 Daniel Cunliffe and Susan Herring distributed a Call for Papers for a special issue of *The New Review of Hypermedia and Multimedia* on "Minority languages, multimedia and the Web."

in their own languages, as is already true of Japan (Gerrard and Nakamura 2004). Unfortunately, there are many important topics on which there has already been research, but that we have not been able to discuss in this short paper. These include gender and culture in non-English-speaking online contexts (Oliveira 2003; Panyametheekul and Herring 2003), code-switching and code-mixing (Su 2003; Palfreyman and Al-Khalil 2003), and attitudes toward the use of the roman alphabet to represent languages not normally written in it (Koutsogiannis and Mitsikopoulou 2003). The investigation of multilingualism on the Internet is a new subfield within Internet studies and in research on computer-mediated communication, which is only now being mapped out. We can expect much more activity in this area in the near future.

References

- Almanac, Computer Industry. *Press release*, "Worldwide Internet Users will Top 1 Billion in 2005." [World Wide Web] 2004.
<http://www.c-i-a.com/pr0904.htm>, retrieved January 5, 2005.
- Anderson, Deborah. 2004. The Script Encoding Initiative (original English version of article published in German). *SIGNA* 6:1-12.
<http://www.linguistics.berkeley.edu/~dwanders/SIGNAEnglish.pdf>,
 retrieved January 11, 2005.
- Baron, Naomi S. 2000. *Alphabet to Email: How Written English Evolved and Where It's Heading*. New York and London: Routledge.
- Bechar-Israeli, Haya. 1995. From <Bonehead> to <Clonehead>: Nicknames, Play and Identity on Internet Relay Chat. *Journal of Computer-Mediated Communication* 1 (2).
<http://jcmc.indiana.edu/vol1/issue2/bechar.html>
 retrieved January 11, 2005.
- Consortium, The Unicode. 2003. *The Unicode standard, version 4.0 (online)*. Boston: Addison-Wesley. <http://www.unicode.org/versions/Unicode4.0.0/>,
 retrieved January 12, 2005..
- Cringely, Bob. 1998. *Nerds 2.0: History of the Internet*. Videotape. New York: Ambrose.
- Crystal, David. 2001. *Language and the Internet*. Cambridge: Cambridge University Press.
- . 2003. *English as a Global Language*. 2nd ed. Cambridge: Cambridge University Press.
- . 2004. *The Stories of English*. New York: Overlook Press, Peter Mayer.
- CyberAtlas. (2003, June 6). Population explosion!
http://www.clickz.com/stats/sectors/geographics/article.php/5911_151151, retrieved
 January 12, 2005.
- Danet, Brenda, ed. 1995. Play and Performance in Computer-Mediated Communication. *Journal of Computer-mediated Communication*. URL <http://jcmc.indiana.edu/vol1/issue2/>,
 retrieved January 12, 2005.
- . 1998. Text as Mask: Gender, Play and Performance on the Internet. In *Cybersociety 2.0: Revisiting Computer-mediated Communication and Community*, edited by Steven G. Jones, pp. 129-158. Thousand Oaks, CA & London: Sage.
- . 2001. *Cyberpl@y: Communicating Online*. Oxford: Berg Publishers. Companion Website: URL <http://atar.msc.huji.ac.il/~msdanet/cyberpl@y/>.
- Danet, Brenda, and Susan C. Herring, eds. 2003. The Multilingual Internet: Language, Culture and Communication in Instant Messaging, Email and Chat. *Journal of Computer-Mediated Communication* 9 (1). <http://jcmc.indiana.edu/vol9/issue1/>, retrieved January 11, 2005.
- Danet, Brenda, and Susan C. Herring, eds. in preparation. *The Multilingual Internet: Language, Culture and Communication Online*.
- Danet, Brenda, Lucia Ruedenberg, and Yehudit Rosenbaum-Tamari. 1998. "Hmmm...Where's That Smoke Coming From?" Writing, Play and Performance on Internet Relay Chat. In

- Network and Netplay: Virtual Groups on the Internet*, edited by Fay Sudweeks, Margaret McLaughlin and Sheizaf Rafaeli, pp. 47-85. Cambridge, MA: AAAI/MIT Press.
- de Oliveira, Sandi Michele. 2003. Breaking Conversational Norms on a Portuguese Users Network: Men as Adjudicators of Politeness? *Journal of Computer-Mediated Communication* 9 (1). <http://jcmc.indiana.edu/vol9/issue1/oliveira.html> retrieved January 11, 2005.
- Durham, Mercedes. 2003. Language Choice on a Swiss Mailing List. *Journal of Computer-mediated Communication* 9 (1). <http://jcmc.indiana.edu/vol9/issue1/oliveira.html>, retrieved January 11, 2005.
- . 2004. The Future of Swiss English. In *Language Variation in Europe: Papers from Iclave 2 (Second International Conference on Language Variation in Europe, Uppsala University, Sweden, June 12-14, 2003)*. edited by B.-L. Gunnarsson, L. Bergström, G. Eklund, S. Fridell, L. H. Hansen, A. Karstadt, B. Nordberg, E. Sundgren and M. Thelander, pp. 156-167. Uppsala: Uppsala University.
- Dürmüller, Urs. 2002. English in Switzerland: From Foreign Language to Lingua Franca. In *Perspectives on English as a World Language*, edited by D. J. Allerton, P. Skandera and C. Tschichold, pp. 115-123. Basel: Schwabe.
- Eurobarometer, European Union. 1999. Eurobarometer Report Number 50: Public Opinion in the European Union. http://europa.eu.int/comm/education/policies/lang/languages/index_en.html, retrieved January 11, 2005.
- Eurobarometer, European Union. 2001. Eurobarometer Report Number 54: Europeans and Languages, Executive Summary. http://europa.eu.int/comm/public_opinion/archives/eb/ebs_147_summ_en.pdf, retrieved January 11, 2005.
- Fahlman, Scott E. n.d. Smiley Lore :-). <http://www-2.cs.cmu.edu/~sef/sefSmiley.htm>, retrieved January 18, 2005.
- Ferguson, Charles. 1972. Diglossia. In *Language and Social Context*, edited by P. P. Giglioli, pp. 232-252. Harmondsworth: Penguin.
- Gerrard, Helen, and Sachiko Nakamura. 2004. Japanese Speakers and the Internet. *International Journal on Multicultural Societies* 6 (1), 93-103.
- Hafner, Katie, and Matthew Lyon. 1996. *Where Wizards Stay Up Late: The Origins of the Internet*. New York: Simon & Schuster.
- Herring, Susan C., ed. 1996. *Computer-mediated Communication: Linguistic, Social and Cross-cultural Perspectives*. Amsterdam: John Benjamins.
- . 2001. Computer-mediated Discourse. In *Handbook of Discourse Analysis*, edited by D. Tannen, D. Schiffrin and H. Hamilton, pp. 612-634. Oxford: Blackwell.
- . 2002. The Language of the Internet: English Dominance or Heteroglossia? Keynote presentation, CATaC (Conference on Cultural Attitudes towards Technology and Communication). Montreal, University of Montreal, 2002. Available from <http://ella.slis.indiana.edu/~herring/CATaC.ppt>.
- Kanayama, Tomoko. 2003. Ethnographic Research on the Experience of Japanese Elderly People Online. *New Media & Society* 5 (2):267-288.
- Katsuno, Hirofumi, and Christine R. Yano. 2002. Face to Face: On-line Subjectivity in Contemporary Japan. *Asian Studies Review* 26 (2):205-231.
- . 2004. *Kaomoji* and Expressivity in a Japanese Housewives' Chatroom, unpublished.*
- Koutsogiannis, Dimitris, and Bessie Mitsikopoulou. 2003. Greeklish and Greekness: Trends and Discourses of "Glocalness". *Journal of Computer-Mediated Communication* 9 (1). http://jcmc.indiana.edu/vol9/issue1/kouts_mits.html, retrieved January 12, 2005.
- Mafu, Safari. 2004. From the Oral Tradition to the Information Era: The Case of Tanzania. *International Journal on Multicultural Societies* 6 (1), 53-78.
- Morita, Emi. 2003. The Japanese Interactional Particles *ne* and *sa*: An Analysis of their Conditional Relevance for Conversation. Unpublished Ph.D. thesis, University of California, Los Angeles, Los Angeles.
- Nettle, Daniel, and Suzanne Romaine. 2000. *Vanishing Voices: The Extinction of the World's Languages*. Oxford: Oxford University Press.

- Nishimura, Yukiko. 2003. Linguistic Innovations and Interactional Features of Casual Online Communication in Japanese. *Journal of Computer-mediated Communication*. <http://jcmc.indiana.edu/vol9/issue1/nishimura.html>, retrieved January 12, 2005.
- O'Neill, Judy. 1995. The Role of ARPA in the Development of the ARPANET, 1961-1972. *Annals of the History of Computing* 17 (4):76-81.
- Palfreyman, David, and Muhamed Al-Khalil. 2003. "A Funky Language for Teenzz to Use:" Representing Gulf Arabic in Instant Messaging. *Journal of Computer-Mediated Communication* 9 (1). <http://jcmc.indiana.edu/vol9/issue1/palfreyman.html>, retrieved January 12, 2005.
- Panyametheekul, Siriporn, and Susan C. Herring. 2003. Gender and Turn Allocation in a Thai Chat Room. *Journal of Computer-mediated Communication* 9 (1). http://jcmc.indiana.edu/vol9/issue1/panya_herring.html, retrieved January 12, 2005.
- Phillipson, Robert. 1992. *Linguistic Imperialism*. Oxford: Oxford University Press.
- Phillipson, Robert, and Tove Skutnabb-Kangas. 2001. Linguistic Imperialism. In *Concise Encyclopedia of Sociolinguistics.*, edited by R. Mesthrie, pp.570-574. Oxford: Elsevier Science.
- Su, Hsi-Yao. 2003. The Multilingual and Multi-Orthographic Taiwan-Based Internet: Creative Uses of Writing Systems on College-Affiliated BBSs. *Journal of Computer-Mediated Communication* 9 (1). <http://jcmc.indiana.edu/vol9/issue1/su.html>, retrieved January 12, 2005.
- Sugimoto, Taku, and James A. Levin. 2000. Multiple Literacies and Multimedia: A Comparison of Japanese and American Uses of the Internet. In *Global Literacies and the World-Wide Web*, edited by G. E. Hawisher and C. L. Selfe, pp. 133-153. London: Routledge.
- Turkle, Sherry. 1995. *Life on the Screen: Identity in the Age of the Internet*. New York, NY: Simon & Schuster.
- Warschauer, Mark, Ghada R. El Said, and Ayman Zohry. 2002. Language Choice Online: Globalization and Identity in Egypt. *Journal of Computer-Mediated Communication* 7 (4). <http://jcmc.indiana.edu/vol7/issue4/warschauer.html>, retrieved January 12, 2005.
- Werry, Christopher C. 1996. Linguistic and Interactional Features of Internet Relay Chat. In *Computer-mediated Communication: Linguistic, Social and Cross-cultural Perspectives*, edited by Susan C. Herring, pp. 47-64. Philadelphia and Amsterdam: John Benjamins.
- Witmer, Diane F., and Sandra Lee Katzman. 1997. On-Line Smiles: Does Gender Make a Difference in the Use of Graphic Accents? *Journal of Computer-Mediated Communication* 2 (4). <http://jcmc.indiana.edu/vol2/issue4/witmer1.html>, retrieved January 12, 2005.
- Wodak, Ruth, and Scott Wright. 2004. The European Union in Cyberspace: Democratic Participation via Online Multilingual Discussion Boards? unpublished.*
- Wright, Scott. 2004. A Comparative Analysis of Government-run Discussion Boards at the Local, National and European Union levels. Unpublished Ph.D. thesis, University of East Anglia, Norwich.
- Wright, Sue, ed. 2004. Multilingualism on the Internet. *International Journal on Multicultural Societies* 6 (1).
- . 2004. Thematic Introduction. In *International Journal on Multicultural Societies* 6 (1): 3-11.
- Yates, Simeon J. 1996. Oral and Written Linguistic Aspects of Computer-conferencing. In *Computer-mediated Communication: Linguistic, Social and Cross-Cultural Perspectives*, edited by Susan C. Herring, pp. 29-46. Amsterdam & Philadelphia: John Benjamins.

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