Edith Cowan University
Research Online

ECU Publications Pre. 2011

2008

Is it Meaningless to Talk About 'the Internet'?

Lelia Rosalind Green
Edith Cowan University

This article was originally published as: Green, L. R. (2008). Is it meaningless to talk about 'the Internet'? Australian Journal of Communication, 35(3), 1-14.
This Journal Article is posted at Research Online.
http://ro.ecu.edu.au/ecuworks/826

2 0 0 9 0 2 2 0 4

Is it meaningless to talk about 'the Internet'?

Lelia Green

ABSTRACT: *This paper suggests that there is no longer any fixed meaning to the term 'Internet'. Instead, the Internet is created anew in the hands of each individual user and reflects their priorities and interests. At the same time, the dynamism of Internet innovation and development is such that a burgeoning range of options has become available, allowing Internet users to customise and create their online environment to approximate a personal manifestation of what we might call, in a generic sense, 'their Internet'. In part, this shift has been reflected in something as mundane as the everyday usage of the word. Just a few years ago, the word 'internet' would have been identified by MS Word as an error, unless it had a capital 'I'. Now that word—without the capital letter—is accepted. [This journal still prefers 'Internet'. Ed.] The Internet is no longer a proper noun, like a place: instead, the word 'Internet' is more frequently used as an adjective or a noun—a general category of thing, as in 'internet shopping' and 'internet research'. This paper looks at whether we can still have a shared meaning around the concept of 'the Internet' and, if so, what that meaning is and how and where it is confounded in everyday and emerging usage. It argues that the meaningfulness of the term 'Internet' is now highly compromised and that the specificity it once enjoyed has now become subsumed within a generality equivalent to the notion of 'the book', or of 'communication'.*

Introduction

Lelia Green, School of Communications and Arts, Edith Cowan University, Perth, Western Australia, Australia.

Constructed as an immensely versatile techno-system, the Internet has energised creativity, collaboration, and commercialisation on a global scale in unexpected and unpredictable ways. This paper takes as its starting point a non-expert-user longitudinal exposure to what we now call the 'Internet', dating back to the early

Copyright of Full Text rests with the original copyright owner and, except as permitted under the Copyright Act 1968, copying this copyright material is prohibited without the permission of the owner or its exclusive licensee or agent or by way of a licence from Copyright Agency Limited. For information about such licences contact Copyright Agency Limited on (02) 93947600 (ph) or (02) 93947601 (fax)

1990s. Unlike the many computer science enthusiasts who were users of listservs and bulletin boards almost twenty years ago, my interest stemmed from an industry background as a television researcher and producer, and a research background centring on community demand for, and uptake of, satellite broadcasting. In effect, the research interest was in what uses people make of new technologies, rather than a fascination with the new technologies themselves. Just as academic interest in satellite broadcasting began to wane, so was interest generated in the new communication tools of 'electronic mail' and other e-applications, and the idea that people could create 'communities' in 'cyberspace'. In a book that I co-edited, published in 1994—generated and edited in 1993—the concept of the Internet was somewhat nebulous. Concrete areas of discussion, addressed by some of the chapter authors, referred to LANs (Local Area Networks), WANs (Wide Area Networks), and Internet protocols (such as TCP/IP) that allowed data to travel between different computers and networks. Insofar as the Internet was mentioned—and it is indexed three times, and included in the definitions as 'a huge global network of computer systems which provides users with access to electronic mail, a range of information sources (data bases) and mechanisms by which collections of information (computer files) can be moved between users' (Green & Guinery 1994, p. xxii)—it is as a non-complex term used to refer primarily to the shared space between the private networks.

At that time, all but a growing number of expert computer users conceived the Internet as a smaller subsection of the electronic activity where all the other networks overlapped. Like a Venn diagram, this was definitely a sub-section of the whole, and the WWW—World Wide Web—was, in turn, a subsection of the Internet. For people without a LAN of their own, an Internet Service Provider made it possible to connect to this shared space, but it was very much the site of non-important, discretionary activity. All the really valuable work, the creating of the 'information sources' and the amassing of 'collections of information' were thought to occur in the LANs and WANs.

Even as that 1994 book was being printed, but before it reached the shelves, the situation was evolving. In 1993, Tim Berners-Lee's site at CERN, exemplifying his principle of Internet connectivity, was receiving 10,000 hits a day and a tipping point was reached where a general level of awareness was breaking through to the broader (non-Computer Science) population. The Internet was acquiring the meaning that it was to retain for the next decade. It became conceptualised as an exciting place where people were able to connect

to others and to huge amounts of information to explore aspects of themselves and their lives that might not have otherwise been accessible. The role of 'others'—sometimes people of known physical identity, sometimes unknown people—was often an important part of these explorations, which were frequently done as part of an online community membership. As the Internet has become more pervasive, with an unfathomable proliferation of sites and services, so it has become less useful to talk about 'Internet users' and more sensible to discuss produsers—producers/users—gamers, bloggers, wikis, open source and others, alongside corporate and bureaucratic uses of the Internet for advertising, (viral) marketing, service delivery, product information, and education. There is a sense in which the Internet had gone from 'nowhere' to being 'too big to handle' in the space of a decade. That transition coincided, in many of the developed countries of the world, with the point at which the dot-com bubble burst and a majority of families with school-aged children came online.

In the past five years it has become apparent that the Internet has morphed again. In domestic contexts it is now comparatively commonplace for families to have wireless connectivity. This means several things: firstly, all members of the family can be online simultaneously (there's been an end to the fighting over 'my turn now'); secondly, family members can generally be online in private spaces (meaning that parents and guardians are less able to supervise and restrict children's and teens' website access); thirdly, friends and other affinity networks can also be accessed at almost any time (and if the affinity network is sufficiently pervasive, this means a theoretical 24-hour availability); fourthly, the remaining tether—the domestication of the wireless modem—is about to be broken, heralding in the much discussed Web 2.0 era with extensive access analogous to the coverage enjoyed by mobile phones. Clearly, these changing circumstances mean that what we think we know about the Internet and family life is rapidly becoming outdated, and is about to be superseded. As the new generation of autonomous (unsupervised) Internet users becomes ever younger, however, it remains incontrovertible that the Internet usage of the average teenager is very unlike that of their parent. In effect, each of these generations—and some would argue each of the genders—is reinventing the Internet for themselves, while within each generation produsers are customising their iteration of the Internet. In which case, does the notion of a singular entity—'The Internet'—have meaning any more?

Continuous reinvention

The Internet is constantly being reinvented as a social and economic space by users, technological innovators, and marketers. Further, these produsers are often identified with a range of these categories simultaneously. For example, the creators of wiki content, mod games, fan fiction, blogs, and indymedia are frequently engaged in marketing their online products and can often also be said to be involved in self-promotion. Unlike a book (and the parallel here is with Porush's [1998] discussion of the invention of writing and the work of written language in rewiring the synaptic pathways of the human brain), the Internet is changed as we interact with it. Most of the times when we access Internet content we contribute to a complex hierarchy of use that affects which sites are offered to 'browsers', or casual enquirers, who log on looking for information. We also, as likely as not, trail cookies as we travel. Given that cyberspace is brain-changing as Porush argues, the relationship with the Internet is reflexive: produsers' brains are cyberspace-changing as a product of interaction and usage. Our personal manifestation of the Internet—as each of us engages with the infinite variety of information available—is a reflection of our unique interests and habits. The extent of the individuality of our engagement with the Internet is such that an Internet user with unfettered access is as likely to have as individual an experience of 'their' Internet as they are likely to have an individual fingerprint.

While the Internet has a contested history, its roots are generally agreed to be in computer networks, defence strategies, academic freedoms, libertarian philosophies, and frontier mythologies. This background provides the foundation for an individual's engagement with the Internet as social, communicative, and technological space and as a conduit for more specialised aspects of digital culture and communication. It should be recognised here that the internationalisation of the Internet—its transmigration from the United States to countries the world over—has also seen considerable differences emerge in terms of country- and culture-specific Internet engagement that reflects national priorities and investments. The high-speed connectivity of Korea, for example, and the emergence of e-gaming as a highly lucrative national sport, is distinctly different from the Internet as it manifests in China, or in Australia. Given this, this paper particularly reflects the Internet experience of a well-resourced, western, free-market economy.

The mythological and romantic background to the Internet, as outlined above, can obscure the role of social, economic, and cultural elites in making the Internet in their image and restricting the opportunities

of the less powerful to explore the full range of possibilities. Here the social shaping of technology approach (MacKenzie & Wajcman, 1999) offers a more benign picture of the process than does Roszak's (1994) *Cult of Information*. (The social shaping of technology argues that technology is shaped for use by social forces in contrast to the technological determinism view, which argues that some technologies necessarily result in evil outcomes.) Nonetheless, given that social forces are capable of shaping a technology—as the Internet was when it started—then stronger social forces are more able to achieve this end. Arguing elsewhere that there is an 'ABC of technological advantage' (Green, 2002, pp. 9-12), I have since found it necessary to add a 'D'. Whereas in the past it might have been appropriate to restrict the list of effective cliques and power elites to the Armed Forces (A), Bureaucracies (B), and Corporate Power (C), in the emerging online world it is evident that mention also needs to be made of Distributed Networks (D: as with open source, wikis, etc.) (Green et al. 2005, p. 23). This expansion of the alphabet of elites, cliques, and networks occurs concurrently with the shift from the old Web 1.0, pre- dot.com bust days to the current, enlarged notion of the Internet. Arguably, this shift is mirrored by a change in vocabulary whereby the Internet no longer refers to a specific entity, but to a class of entities. 'Chair', for example, has multiple related but different meanings, in a way that is analogous to today's usage of the term 'Internet'. Indeed, the Internet is not solely many different things to many different people; it also serves many different functions. It is a technological system that has become a cultural, commercial, and regulatory institution.

The Internet is dead: Long live the Internet!

The loss of specificity for a referent associated with the term 'Internet' is less of a death than the birth of a multi-headed hydra. A quick look at current books on (aspects of) the Internet demonstrates how fertile and productive a space this is for intellectual activity and focused research. Such books include, for example, a focus on Web 2.0 (Vossen & Hagemann, 2007), mobile media (Goggin, 2006), social networks (Boyd, 2007a, Haythornwaite, 2007a), games culture (Taylor, 2006), and open source (Muffatto, 2006).

Web 2.0, as discussed by Vossen and Hagemann (2007, p. 66) can be described 'as the 'read/write Web', whereas a design viewpoint (Macmanus & Porter, 2005), expressed early in the dialogue, conceives Web 2.0 'as 'the Web as platform', and goes on to say that 'if we think about the Web as a platform for interacting with content, we begin

to see how it impacts design. Imagine a bunch of stores of content provided by different parties—companies, individuals, governments—upon which we could build interfaces that combine the information in ways no single domain ever could'. In that design article there is no mention of mobile access by web users. (There is, however, comment on 'moving away from place'—meaning uncoupling information from the site at which it is held.) Within six months, however, people had begun defining Web 2.0 more specifically (O'Reilly, 2005) and linking its emergence to the characteristics of the post-dot-com-crash companies that had survived 2001. For this purpose, O'Reilly created a then/now list, which he argued marked the differentiation of Web 1.0 from Web 2.0, and which led to a set of seven principles that created the 'gravitational core' of the new Web 2.0 concept. These principles are as follows: The Web as platform, Harnessing collective intelligence, Data is the next Intel Inside, End of the software release cycle, Lightweight programming models, Software above the level of a single device, and Rich user experiences. O'Reilly's article has been generally accepted as the first success in defining Web 2.0 and has set the agenda for the discussion to follow. (See De Waele, 2006.)

As the idea of Web 2.0 began to exert its gravitational pull, however, it became clear that the mobile phone—building on the experience of iTunes and iPods—would be the device of choice for accessing Web 2.0 content. Developers started talking about 'Mobile 2.0' as the critical advantage of Web 2.0 advances (De Waele, 2006) and began to address characteristics of 'mobile media' (Goggin, 2006) rather than mobile phones. 'The idea is that the mobile web will become the dominant access method in many countries of the world, with devices that become more hybrid and networks that become more powerful' (De Waele, 2006). The shift is likely to have as much impact as the difference between tethered web access (in terms of a one-computer-per-online-access model) and the wireless modem (where multiple people can go online within wireless range). For a generation that has grown up using mobiles to text and connect, the added applications of Web 2.0/Mobile 2.0—and the willingness of the mobile phone companies to get involved—indicates that Rheingold's Smart Mobs (2002) are about to get smarter, while those who find the price and maintenance of a PC prohibitive, in many majority countries, can have much readier access to a more powerful web. As Eric Schmidt, Google's Chief Executive Officer (cited by De Waele, 2006) comments:

> *Mobile phones are cheaper than PCs, there are three times more of them, growing at twice the speed, and they increasingly*

have Internet access. What is more, the World Bank estimates that more than two-thirds of the world's population lives within range of a mobile phone network. Mobile is going to be the next big Internet phenomenon. It holds the key to greater access for everyone—with all the benefits that entails.

The Internet will be more available in more places, and also available to more people. It is time to stop talking about CMC—computer mediated communication—and acknowledge the superior inclusivity of DMC: digitally mediated communication.

Social networks have been conceptualised as a relatively recent manifestation of the Internet. Even so, they have their antecedents in communities, newsgroups, live/dead journalling, online gaming, and other collaborative e-enterprises. danah boyd, a researcher closely associated with the study of Social Network Sites (SNSes) who prefers not to capitalise her name, comments that the proliferation and prevalence of these sites is causing a redefinition of the notions of 'public' and 'private' (boyd, 2007b). She identifies three common factors for SNSes: Profiles, created by the person from 'text, images, video, audio, links, quizzes and surveys'; Friends—people who have agreed to reciprocate membership of each other's site (and through whom other friends and links are further webbed); and 'a public commenting feature [... that] allows individuals to comment on their Friends' profiles' (boyd, 2007b, p. 2). boyd goes on to say that, while there is some stranger-browsing on open sites, it is generally the case that 'people join the sites with their friends and use the different messaging tools to hang out, share cultural artifacts and ideas, and communicate with one another' (2007b, p. 2). Elsewhere, Haythornthwaite (2007b) suggests that the SNSes illustrate 'the concept of "social software", and how technologies such as Facebook and MySpace provide a means for weak-tie formation'.

Echoing Masuda's four properties of information (1978, cited in Jones, 1995, pp. 186-7)—that information is (i) inconsumable; (ii) untransferable; (iii) indivisible, and (iv) cumulative—boyd argues (2007b, pp. 2-3) for four properties of Social Network Sites that require they be treated with caution: Persistence (in that the statements can last into the foreseeable future); Searchability (allowing publicly accessible authors to be swiftly located); Replicability (which means that exchanges can be copied and pasted—and maybe altered—with ease); and Invisible audiences (both now, and [given persistence, searchability, and replicability] into the future). Arguing that teens tend

to adopt one of three strategies to cope with these risks (putting on an adult-approved public face, falsifying age/sex/location details, or acting authentically on the grounds that those likely to be offended shouldn't be looking), boyd suggests that most teens know that their SNSes are accessible but seek security in obscurity. With Web 2.0 in mind, that security and obscurity are even more illusory: 'when things go mobile, location based information will add a new dimension to the hyperpublic infrastructure', says boyd (2007b, p. 4).

Haythornthwaite (2007b) has developed a theory 'which I refer to as *latent tie theory*' through which she holds that:

> *establishing a group-wide medium creates latent ties from which weak ties may build. Where such a group-wide medium already exists, a change in this medium recasts weak ties, both disrupting existing ties which have only been maintained because the medium has made such casual interpersonal connection easy, and creating new latent ties which may then become new weak tie connections.*

Such disruptions can be caused by moving face-to-face interactions into SNSes. The focus on weak ties here is predominantly because strong ties are very little affected by changes in communication medium—not least because almost all people with strong ties in liberal market economies use multiple communications: 'Strongly tied individuals not only have more reason to make the effort to continue their connection and are likely to work together to do so, they also tend to use more media already, and thus can continue their connection via other means'. Thus Haythornthwaite (2007b) predicts that 'where such media already exist, change will have its greatest impact on current and future weak ties connections [... and] consideration needs to be given equally to both what the technology enables and what it disables in terms of access to resources, exposure to others, and formation of social ties'.

As numerous parents and children have discovered, however, access to the Internet does not guarantee that people will use it in one way rather than another. Instead, access to the Internet opens up a range of possibilities that can include areas that the technology sponsor had not imagined and does not approve of. Online gaming (computer games, not gambling—although that can be an issue for some households) is one example of the kind of activity that disturbs many parents while entrancing their children. For some gamers, their prowess has led to

the formation of e-sports with prize purses exceeding $1 million. For many, gaming has led to the repurposing of the term LAN to include a gathering of gamers working together as a team against co-present or distant others. Nichols et al (2006, pp. 1-3) describe the scene on a Saturday night in Kuala Lumpur, Malaysia:

> *The LAN arena. This huge dimly-lit cavern is filled with more than a thousand PCs, each with a trendily-dressed young gamer, all with headphones clamped to their heads, hunched over keyboard and mouse, frantically clicking and tapping. Some have small groups of friends behind them, egging them on; others are playing solo. [...] What is happening here is not immediately obvious to the uninitiated. It might appear that these gamers are wrapped up n their own little fantasy worlds, oblivious to everyone around them. In fact, they're not. Most of them are playing games as part of teams composed of several others in the room. The LAN—or local area network—means that all the computers you see are linked together [...] there are a great many games being played back and forth across the network [and the Internet] all at the same time, each with its own rhythm of triumph and defeat, exhilaration and disappointment. (Nichols et al, 2006, pp. 1-3)*

Gaming is attracting increasing commercial and academic interest because participants not only play the games: they pay to play the games:

Table 1. Size of the video gaming market in comparison with other sectors of the entertainment industry

Entertainment Industry	Value of Market $1 Billion (approx.)
Video gaming	25
Home video	20
Music	15
Film	10

(based on table 1.1, Nichols et al., 2006, p. 5, who predict that the size of the game market will double in five years, p. 120)

Marketers are clearly interested (and that is the motivation for Nichols's book, interrogating the commercial value of these activities), but so are anthropologists and other social science researchers. Taylor comments

(2006, p. 56): 'As children and teens occupy positions of power, as intergenerational friendships develop, as partners find new friendship networks not solely reliant on the nuclear family [...] these game spaces offer interesting possibilities to undo some of the constraint produced by traditional families and localized friendship pools'. Such benefits only sometimes balance the costs in the domestic spaces of many families. In the typical western multi-generational household, particularly with resident school children, the primary motivation for investing in and providing online resources is commonly given as 'Education' (Marshall 1997): this is only sometimes the priority of the teens and young adults using the resources, however, as Green and Guinery argue (2006, p. 11): 'Few people construct gaming in general and LANing in particular as evidence of highly desirable social and technical skills'.

Open source aficionados tend to see their passion as being both participatory (in that it is a collective activity) and liberational (in that it can be constructed as anti-capital, since the software produced is freely circulated. Even so, it is increasingly the case that successful business models—such as used by Linux and Mozilla Firefox—have emerged, using open source as the centerpiece. Although Taylor (2006, p. xii) identifies six software development models—Build and fix, Waterfall, Iterative development, Evolutionary, Prototyping, and Spiral—the two models most popularly referred to are 'The Cathedral' and 'The Bazaar', from Eric Raymond's (2000) essay of that name, which contrasts Microsoft processes (the cathedral) with those of the open source movement (the bazaar).

Discussing the decision by Netscape to throw open the source code of its software in 1998, allowing those who use it to modify and improve it, Streeter (2003, p.659) comments that 'the core trope is to portray Linux-style software development like a bazaar, a real-life competitive marketplace'. The bazaar features a world of competing, yet complementary, small traders, each displaying their skills and their wares for evaluation in terms of the product on offer. In contrast, 'Microsoft-style software production is portrayed as hierarchical and centralised—and thus inefficient—like a cathedral'. Raymond identifies 'ego satisfaction and reputation among other [peers]' as a specific socio-emotional benefit for volunteer participants (in Open Source development), going on to note:

> *Voluntary cultures that work this way are not actually uncommon [... for example] science fiction fandom, which unlike hackerdom has long explicitly recognized 'egoboo' (ego-boosting, or the enhancement of one's reputation among other fans) as the basic drive behind volunteer activity. (Green & Guinery, 2004)*

For those fully involved in Open Source communities online—and the analogous activities being carried out on Wikis and in the blogosphere—their experience of the Internet is arguably different from that of Gamers, and SNSers and may yet become more different still once Web 2.0 becomes fully operational. The question remains: can the site of all these diverse developments and activities be most usefully designated by a unitary name? Is 'The Internet' still meaningful?

Conclusion

In his article on 'The romantic self and the politics of Internet commercialization', Streeter (2003) critiques the idea that the computer is an 'identity machine' (p. 649), arguing instead for 'identities that people have brought to computers from the culture at large'. He goes on to suggest (p. 651) that 'what the Internet is and will come to be, then, is partly a matter of who we expect to be when we sit down to use it'. I would add that it also depends upon the reasons for which we sit down to use it (or, in Web 2.0, wait standing at the bus stop and use it). Once upon a time it made sense to ask someone, 'What do you think about the Internet?' Those days have gone. In the same way, people do not ask what others think of 'the book' or 'the television' or 'the film': at least, not without expecting to be asked to specify *which* book, television program, or film. While not necessarily 'all things to all people', the Internet is now 'too many things to too many people' for us to continue using the generic as the specific.

This paper has argued for the notion of 'The Internet' to be restricted to indicating the generality of DMC (Digitally Mediated Communication, acknowledging the post-PC world) and for the different uses and manifestations of the Internet to be recognised as separate and distinct. The advantages of this recommendation are that people will have greater awareness of what the Internet consists of and the many ways in which it can be used and studied. At the same time, the different activities and arena currently encompassed by the notion of 'the Internet' will be able to emerge as the heroes of their own stories in their own right. Further, this strategy allows the use of the term to specify the generality of the Internet as the generality of 'the book' and 'the film' do have a readily accessible meaning. The limitation of this recommendation is also an advantage: it will require people to think differently when talking about the Internet and recognize and specify which of its manifestations is being referred to. Hopefully, as this strategy is applied, as more is said, more will be communicated.

Acknowledgments

Some of the work cited has its origins in an Australian Research Council Discovery Grant on *Family Internet: Theorising domestic Internet consumption, production and use within Australian families* (2002-5). I acknowledge with gratitude their financial support, and the input at that time from my co-Chief Investigator Professor Robyn Quin and Research Assistants Donell Holloway and Jack Seddon. A draft of this paper was used as a seminar prompt for a presentation to the Hawke Research Institute for Sustainable Societies and I am grateful for the feedback from all the scholars who attended, but especially to Associate Professor Gerry Bloustien.

References

boyd, D. (2007a). Why youth (heart) social network sites: The role of networked publics in teenage social life. In D. Buckingham, (Ed.). *Youth, identity and digital media*, pp. 119-142. Cambridge, MA: MIT Press.

boyd, D. (2007b). Social networking sites: Public, private or what? *The knowledge tree: An e-journal of learning innovation*. Retrieved January 2008, from http://kt.flexiblelearning.net.au/tkt2007/wp-content/uploads/2007/04/boyd.pdf.

De Waele, R. (2006). Understanding Mobile 2.0. *ReadWriteWeb*. December 11. Retrieved January 2008, from http://www.readwriteweb.com/archives/understanding_mobile_2.php.

Goggin, G. (2006). *Cell phone culture: Mobile technology in everyday life*. Routledge: London and New York.

Green, L. (2002). *Technoculture: From alphabet to cybersex*. Allen & Unwin: Sydney.

Green, L. & Guinery, B. (2006). Play up! Play up! And play the game! *Cultural studies association of Australasia*. Retrieved from http://www.unaustralia.com/electronicpdf/Ungreen&guinery.pdf.

Green, L. & Guinery, C. (2004). Harry Potter and the fan fiction phenomenon. *M/C: A Journal of media and culture, Fame, 7*(5). Retrieved from http://journal.media-culture.org.au/0411/14-green.php.

Green, L. & Guinery, R. (Eds.). (1994). *Framing technology: Society, choice and change*. Allen & Unwin: Sydney.

Green, L., Lallana, E., Shafiee, M., & Zaharom, N. (2005). Social, political and cultural aspects of ICT: E-governance, popular participation and international politics. In Chin Saik Yoon (Ed.). *Digital Review of Asia Pacific 2005/2006*, pp. 31-46. Penang: Southbound; Kuala Lumpur: Asia-Pacific Development Information Programme, UN Development Programme; Ottawa: Pan Asia Networking Programme, International Development Research Centre; Montreal: Orbicom Network of UNESCO Chairs in Communications.

Haythornwaite, C. (2007a). Social networks and online community. In A. N. Joinson, K. Y. A. McKenna, T. Postmes, & U. D. Reips (Eds.). *The Oxford handbook of Internet psychology*. Oxford: Oxford University Press.

Haythornthwaite, C. (2007b). Technology and tie formation: Social and technical foundations for latent ties. *First Monday.* Retrieved January 2008, from http://www.firstmonday.org/ISSUES/issue12_8/haythorn/#h4.

Jones, B. (1995). *Sleepers, wake! Technology and the future of work,* 4th ed. Melbourne: Oxford University Press.

MacKenzie, D. & Wajcman, J. (Eds.). (1999). *The social shaping of technology: How the refrigerator got its hum,* 2nd ed. Milton Keynes: Open University Press.

MacManus, R. & Porter, J. (2005). Web 2.0 for designers. *Digital Web Magazine,* May 4. Retrieved January 2008, from http://www.digital-web.com/articles/web_2_for_designers/

Marshall, P. D. (1997). Technophobia: Video games, computer hacks and cybernetics. *Media International Australia, 85,* November, pp. 70-78.

Masuda, Y. (1978). Future perspectives for information utility. *Evolution in computer communications.* Amsterdam: International Council for Computer Communications.

Muffatto, M. (2006). *Open source: A multidisciplinary approach.* London: Imperial College Press.

Nichols, D., Farrand, T., Rowley, T., & Avery, M. (2006). *Brands & gaming: The computer gaming phenomenon and its impact on brands and businesses.* Basingstoke, UK: Palgrave McMillan.

O'Reilly, T. (2005). What is Web 2.0? Design patterns and business models for the next generation of software. *Tim O'Reilly,* September 30, Retrieved January 2008, from http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html.

Porush, D. (1998). Telepathy: Alphabetic consciousness and the age of cyborg illiteracy. In J. Dixon & E. Cassidy, (Eds.). *Virtual futures: cyberotics, technology and post-human pragmatism,* pp. 45-64. London: Routledge.

Raymond, E. S. (2000). *The cathedral and the bazaar.* Retrieved January 2008, from http://www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/index.html#catbmain.

Rheingold, H. (2002). *Smart mobs: The next social revolution.* Cambridge, MA: Perseus Publishing.

Roszak, T. (1994). *The cult of information: A neo-Luddite treatise on high tech, artificial intelligence and the true art of thinking.* Los Angeles: University of California Press.

Streeter, T. (2003). The romantic self and the politics of Internet commercialization. *Cultural Studies 17*(5), pp. 648-668.

Taylor, T. L. (2006). *Play between worlds: Exploring online game culture.* Cambridge, MA: MIT Press.

Vossen, G. & Hagemann, S. (2007). *Unleashing Web 2.0: From concepts to creativity.* Boston: Elsevier/Morgan Kaufmann.