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The Wired – and Wireless – Japanese: Webphones, PCs and Social Networks

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28.1 The Mobile-ization of Society

28.1.1 From Wired to Wireless

Once upon a time, not so long ago, people were rooted to their homes and workplaces by computers that were wired in place by electric and Internet cables. In those days, the magic book was called *Wired* magazine. Its vibrant pages told all that was avant-garde about the Internet and other forms of computer-mediated communication. Its name evoked how computer-mediated communication electronically connected people to the world.

Then mobility came. First, portable computers – originally 11 kg back-breakers – shrank into portable notebooks weighing 2–4 kg. Software became standardized and the Internet globally available, so wherever people went they could connect with the network. Personal digital assistants, such as the *Palm*, became capable of accessing the Internet. However, the most widespread change was the birth of mobile phones, which became as common in people's pockets and handbags as their keys. By the turn of the 21st century, mobile phones had become *webphones* (our term): capable of connecting to the internet to use the web and exchange e-mail and short text messages.[1] Meanwhile, *Wired* magazine had become a ghost of itself, declining 29% from 240 pages in September 1996 to 170 pages in June 2004, with the editors noting ruefully that their

[1] We include SMS ("short message service", sometimes known as "texting") in addition to regular e-mail in all of our analyses. Mobile phones that can access the Internet have been so rare in the English-speaking world that we had to coin a new word, "webphone", to refer to them.

magazine "used to be as thick as a phone book" (*Wired*, 2004, p. 23). Indeed, the name *Wired* has itself become anachronistic in the increasingly wireless society.

Webphones have become the most individualized and intimate of information and communication technologies (Srivastava and Kodate, 2004; Wellman and Hogan, 2004). It is time to consider a new era: how the peripatetic mobile users of the Internet communicate with the members of their social networks and communities (see also Rheingold, 2002).

28.1.2 Japan as a Leading-Edge Case Study

Japan has been at the forefront of the turn towards mobility, with widespread use of webphones. These are much smarter phones than the norm because of the ease of Internet use. Not surprisingly, Japan boasts the highest percentage of mobile Internet users as a proportion of total mobile users. Even casual visitors note the many Japanese pedestrians walking with phones (*keitai*) to their ears, sending text messages on trains and silently scanning their inboxes during get-togethers and meetings. Although Japan is advanced, it is not unique in East Asia, with heavy use in China (Yan, 2003), South Korea (Chae and Kim, 2003) and elsewhere.

The widespread use in Japan of advanced mobile connectivity to the Internet provides a case study to provide better knowledge of the future mobile-ized society (see also Ito et al.'s book on keitai (Ito et al., 2005). This chapter uses survey data from Yamanashi Prefecture to address ongoing debates about the effects of Internet use on community and social support. We focus on three research questions:

1. *Who uses webphones and PCs to send e-mail?* We examine the social characteristics and the social relationships of the users of Internet-connected webphones and PCs.
2. *How do people use these media?* We compare communication via webphones and PCs.
3. *To what extent are webphones and PCs used in social networks?* We compare strong, supportive and weak ties and local and long-distance relationships.

We conclude this chapter by discussing the implications of webphone and PC use for the nature of Japanese communication and social networks, and the turn towards *networked individualism* that is happening in Japan and in other developed societies (Wellman, 2001, 2002). The ubiquitous Internet – along with personal mobile communication – is fostering a societal turn away from groups and toward people connected to each other as individuals rather than as members of households, com-

munities, kinship groups, workgroups and organizations (Wellman and Hogan, 2004). These technologies enable individuals to have personalized communication with whoever, whenever and – with the advent of the mobile Internet – wherever they want.

28.1.3 Transformations of Community

28.1.3.1 From Door-to-Door to Place-to-Place

Although the impacts of the Internet and mobile phones are new, the trend is not. For more than a century, the developed world has been experiencing a shift away from communities based on villages and neighborhoods towards flexible partial communities based on networked households and individuals. One transition was the 19th/20th century move from "door-to-door" to "place-to-place" community relationships. This transition was driven by revolutionary developments in both transportation and communication. It was a move away from a solidary group in a single locale – where people normally walked through the village to each others' homes – to contact between people in different places and multiple social networks – where people used cars, planes, trains and telephones to connect with each other.

Instead of group membership, people became members of multiple social networks where boundaries are more permeable, interactions are with more diverse others and linkages switch among multiple networks (Wellman, 1999, 2001; see also Castells, 2000; Putnam, 2000). Hence, many people can communicate with others in ways that ramify across group boundaries. Rather than relating to one group, they cycle through interactions with a variety of others: at work or in the community. Their work and community networks are diffuse and sparsely knit, with vague, overlapping, social and spatial boundaries. The structure and composition of these networks affect people's control over their lives, and people's structural positions in these networks affect the kinds of resources to which they have access. In this place-to-place world of the early 21st century, groups have become less important.

28.1.3.2 From Place-to-Place to Person-to-Person

Another shift is under way: from place-to-place networks to person-to-person networks in which the individual – and not the household (or workgroup) – is the primary unit of linkage. Until fairly recently, transportation and communication have fostered place-to-place community, with expressways and airplanes speeding people from one location to another (without much regard to what is in between). Telephone and postal communication have been delivered to specific, fixed locations.

The change from place-based inter-household ties to individualized person-to-person interactions and specialized role-to-role interactions has been facilitated by the Internet and especially by wireless personal communication: mobile phones, PDAs and webphones (Wellman, 2001). At present, communication is taking over many of the functions of transportation for the exchange of messages. Communication itself is becoming more mobile, with mobile phones and wireless computers proliferating. Although the turn towards person-to-person networks happened well before the development of cyberspace (Wellman and Wetherell, 1996; Wellman, 1999a), the rapid emergence of computer-mediated communications means that relations in cyberplaces are joining with relations on the ground (Wellman and Haythornthwaite, 2002).

Changes in the nature of computer-mediated communication both reflect and foster the development of networked individualism in networked societies. Complex social networks have always existed, but recent technological developments in communication have afforded their emergence as a dominant form of social organization. The technological development of computer networks and the societal flourishing of social networks are affording the rise of networked individualism in a positive feedback loop. Just as the flexibility of less-bounded, spatially dispersed, social networks creates a demand for collaborative communication and information sharing, the rapid development of computer communications networks nourishes societal transitions from group-based societies to network-based societies (Castells, 1996, 2000; Wellman, 2002).

In the early days of the Internet, there were fears that it would destroy communities by drawing people away from face-to-face and now-traditional telephonic communication to leading lonely inauthentic lives online (the debate is reviewed in Wellman and Gulia, 1999; Wellman and Haythornthwaite, 2002). By now, a good deal of research has shown that the Internet has not destroyed communities. Rather, it adds on to existing relationships with community members: friends, acquaintances, relatives and even neighbors (see the chapters in Wellman and Haythornthwaite, 2002). The more means of communication that people have, the more they communicate. Furthermore, the Internet appears to be fostering a shift in the means of connectivity from transportation to communication: from airport terminals and road networks to computer terminals, mobile phones and cyber-networks.

Although community has not declined with the advent of the Internet and mobile communication, neither has the nature of community remained the same. The spread of computer-mediated communication media is facilitating social changes that have been developing for decades in the ways in which people contact, interact and obtain resources with each other. Internet and mobile phone connectivity is to persons and not to jacked-in telephones that ring in a fixed place for anyone in the room or house to pick up. The developing personalization, wireless portability

and ubiquitous connectivity of the Internet all facilitate networked individualism as the basis of community. Because connections are to people and not to places, the technology affords shifting of work and community ties from linking people-in-places to linking people at any place. Computer-supported communication is *everywhere*, but it is situated *nowhere*. It is I-alone that is reachable wherever I am: at a home, hotel, office, highway or shopping center. The person has become the portal.

This shift facilitates "*personal communities*" (Wellman, 1979) that supply the essentials of community separately to each individual: support, sociability, information, social identities and a sense of belonging. The person, rather than the household or group, is the primary unit of connectivity. Just as 24/7/365 Internet computing means the high availability of people in specific places, the spread of mobile phones and wireless computing is increasingly coming to mean an even higher availability of people without regard to place. Supportive convoys travel ethereally with each person (Ling and Ytrri, 2002; Katz and Aakhus, 2002).

With networked individualism, each person is a switchboard between ties and networks. People remain connected, but as individuals, rather than being rooted in the home bases of work unit and household. Each person operates a separate personal community network, and switches rapidly among multiple sub-networks. The inherently personal and individualistic webphone makes this even more convenient. In effect, the Internet and other new communication technology are helping each individuals to personalize their own communities. This is neither a prima facie loss nor gain in community, but rather a complex, fundamental transformation in the nature of community.

28.2 Japanese Webphone Use

28.2.1 The Spread of Webphones in Japan

Japan has been in the midst of these changes towards networked individualism. Although it is unlikely that Japan was ever as stably group-centered as stereotypes have portrayed it, recent research has shown that many Japanese engage in personal communities similar to those in other developed countries. Their networks are sparsely knit, not very local, and consist of both friends and kinfolk (Nozawa, 1996; Otani, 1999). Indeed, the very epidemic of mobile phone use in Japan shows how physically dispersed relationships have become.

Accessing the Internet through the use of mobile phones has already become integrated into daily life for a significant proportion of the Japanese population (Barnes and Huff, 2003). By the end of May 2001, more than 40 million Japanese were able to access the Internet through

their mobile phones, with the number rising by 55% to more than 62 million by the end of March 2003 (MPMHAPT, 2004).

Japan was one of the first countries to launch third-generation mobile services, in October 2001, and the first country to launch commercial services based on the W-CDMA standard. The number of mobile phone users exceeded 80 million by March 2004, with most (nearly 70 million) capable of connecting to the Internet from their phones. Seventeen million had advanced third-generation service, whose features include quicker Internet connections. About 90% of Japan's mobile phones could connect to the Internet in September 2003, the highest percentage in the world. By March 2004 more than 60% of all mobile phone subscribers could bring a visual element to their communication via built-in digital cameras (MPMHAPT, 2004).

Since 1999, NTT DoCoMo's Internet mode services (i-mode) have made it possible for subscribers to access web sites specially designed for mobile phones. As a result, mobile phones have expanded from a conventional device for voice transmission into a much broader mobile channel for information and entertainment. Subscribers to i-mode services can not only exchange e-mails, but also read breaking news, reserve tickets and buy newly released pop songs.

The four major Japanese providers of webphone access to the Internet are NTT DoCoMo, KDDI, Vodafone and Tsu-ka (in order of number of subscribers, January 2004). Each uses a variety of Internet protocols: DoCoMo's i-mode is the most popular, followed by WAP (Wireless Application Protocol) and WAP2. Although WAP2 is the least popular, it is rapidly gaining a foothold in the market as it permits advanced "3G" (third-generation) services that provide GPS (global positioning system), video clips, higher speed and other advanced features (Kageyama, 2003).

Japanese webphones have relatively large screens compared with all but the most recent American mobile phones. Sending e-mail through Japanese webphones is similar to sending e-mail through PCs, although users have to cope with less user-friendly telephone keypads. Webphones can send and receive e-mails to and from PCs, and also to other webphones. Users enter the e-mail address of the recipient, a subject line and then the contents of their message. There are helpful typing shortcuts for commonly used words and icons.

28.2.2 Young Adults are Being Served

Young Japanese are heavy users of mobile phones, and regard their gadgets as a personal digital assistant powered by telephone technology (Srivastava and Kodate, 2004). The percentage of young adults in Japan who use webphones to e-mail is much higher than in the USA and many parts of Europe, where webphone e-mail has failed to attract a majority of

people from any age group. This difference is partly due to marketing strategies taken by Japanese mobile phone providers that have catered to the desires of youth and young adults. Japanese providers initially sold webphones as entertainment devices for the younger generation, rather than trying to sell them as practical tools for older business people. By gearing webphones to the younger generation as something fun and relatively inexpensive, they were able to capture the group that was already the largest consumers of mobile phones. As Japanese youth were the first adopters of webphones, webphone use has diffused so quickly and become so ubiquitous among them (Habuchi, 2005; Ito, this volume, Chapter 9). After gaining a foothold in the youth market, webphone providers beefed up bandwidth and web interfaces, making their services more attractive to a wider audience.

Cultural differences and marketing tactics may have driven the quick and ubiquitous adoption of this new technology by younger Japanese. They were probably predisposed to send e-mail through webphones by their extensive use of pagers in 1990s to contact friends and organize social activities. (Parents who wanted to contact their mobile children also spurred the use of pagers.) This incorporation of pagers into everyday routines set the stage for the adoption of webphones with their advantage of smoothly integrating voice and message contact.

Only a few ethnographic studies have investigated younger Japanese use of pagers and mobile phones. One study reports that mobile phones afford Tokyo youth important advantages (Ito, this volume, Chapter 9). The ability to send short messages at any time allows users to keep in frequent contact with friends, strengthening their social networks and providing a feeling of "ultraconnectedness". This sort of communication typically occurs frequently but with only a small number of 2–5 friends. At the same time, typing quick messages gives a new kind of freedom, as it often can be done somewhat covertly without alerting parents. Contacting friends can occur late at night while parents are sleeping, something not easily done through wired landline phones that rarely reside in Japanese children's bedrooms. Complementing this have been Japanese concerns since the 1960s to develop more communication between spouses and between parents and children (Matsuda, 2004). The result is a concentrated, active use of mobile phones to expand and enhance contact between close friends and immediate family.

In contrast to young adults and youth, older Japanese adults first encountered the Internet by using personal computers (PCs) to e-mail and use the web (Miyata, 2002). The mobile phones they first used were not able to access the Internet. Hence, some older adults have not developed the habit of using mobile phones to access the Internet even when their new webphones have this capability. However, many are embracing it, especially when their (often small) homes do not have PCs. Thus Japanese housewives are using webphones to alleviate loneliness, manage

family relationships and gain empowerment through Internet access to communication and information (Miyata, 2002; Dobashi, 2005).

28.3 The Yamanashi Study

Our study of Internet users is based on a random sample survey of 1,320 adults, conducted in November–December 2002 in Yamanashi prefecture in Japan. Yamanashi is a mixed rural and urban area, located in the center of Japan, more than 100 km west of central Tokyo. It is typical of Japan (outside of the Tokyo and Osaka urban agglomerations) in the characteristics of its population and Internet users, and it is famous because Mount Fuji rises in it.

Forty neighborhoods in the Yamanashi prefecture were randomly selected by postal code, with a further random selection of 33 individuals within each of those neighborhoods. These potential respondents were chosen from a voters' list of people aged to 20–65 years. Surveys were in paper form and delivered in person. They were also collected in person 3 weeks after being dropped off. Three-quarters (76%) of the selected individuals completed the survey, providing a sample size of 1,002 respondents.

We divided respondents into three types because those using only webphones or PCs may have different characteristics and patterns of use than those who use both media:

- Those who use only webphones;
- Those who use only PCs;
- those who use both webphones and PCs.

28.4 Webphone and PC Contact with Social Networks

28.4.1 Frequency of E-mail Contact

About half of the Yamanashi respondents do not use webphones at all to send e-mail, and 2% use it only for work and do not send personal messages (Figure 28.1). About 15% of the respondents who have used webphone e-mail did not send any "yesterday" (the day before they completed the questionnaire). One-quarter of all respondents sent 1–5 e-mails through webphones and 9% sent more than 5.

Slightly more e-mails are sent by webphones than by PCs. Fewer respondents send e-mail via PCs (56%) than by webphones (51%) (Figure 28.1), and fewer sent e-mail by PCs "yesterday": 21% vs 14%. Figure 28.1 shows that at every level of e-mail activity, more e-mails are sent by webphones than by PCs.

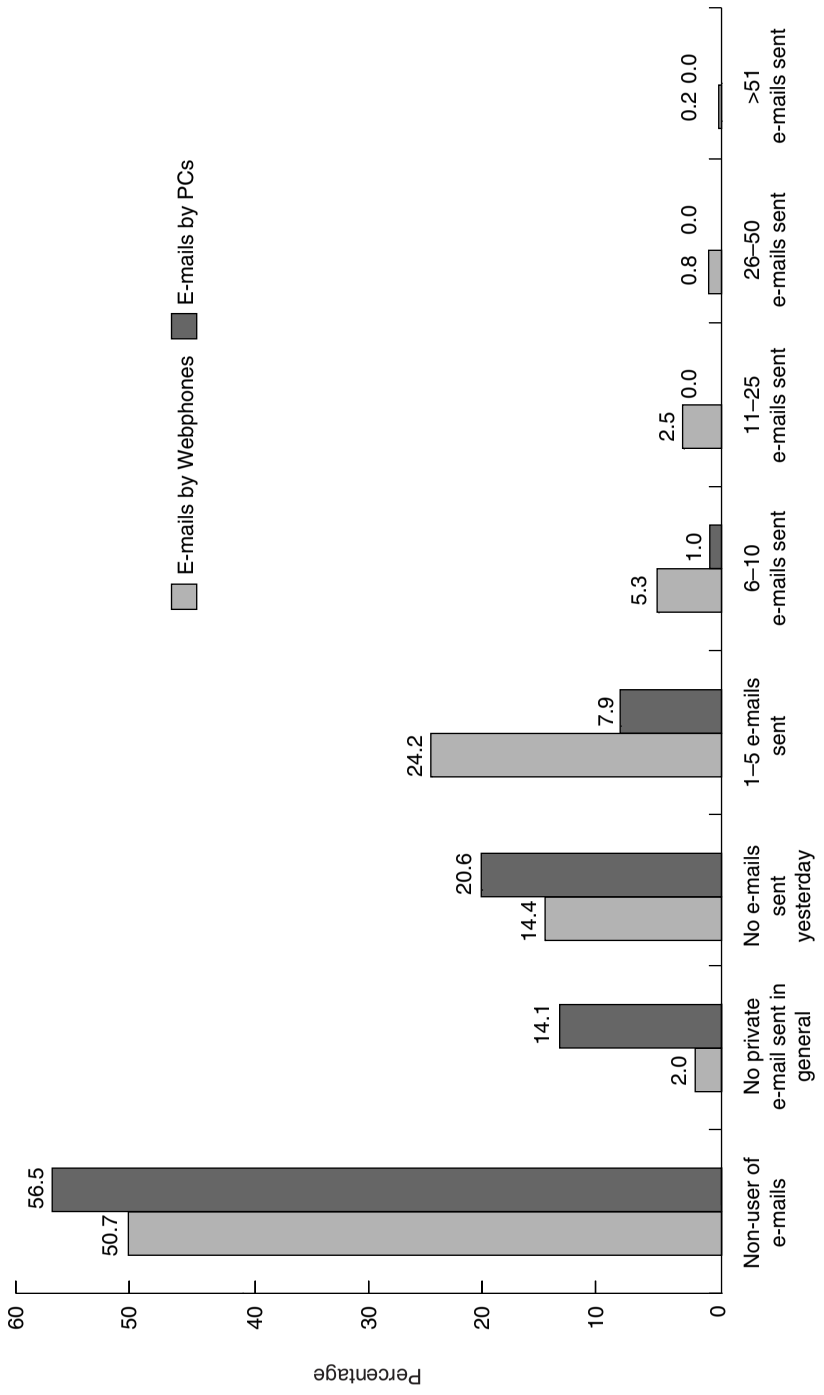

Figure 28.1 Percentage of respondents using e-mails.

Those who only use webphones send an average of about six e-mails per day, whereas those who only use PCs send two-thirds fewer, an average of about two e-mail per day.[2] The greatest number of e-mails are sent by those using both webphones and PCs, about six e-mails per day through their webphone, plus about two e-mails per day through their PC, for a total of eight e-mails per day.

In short, using both media, webphones and PCs, adds to the number of e-mails sent: one medium does not replace the other. This finding, that using both a PC and a webphone is associated with more frequent e-mail use, is congruent with other studies' findings that the more media are used, the greater is the overall amount of communication (Haythornthwaite and Wellman, 1998; Quan-Haase et al., 2002). It further suggests that different sorts of e-mail are being sent by webphones and PCs.

Do people substitute webphones for PCs when sending e-mail, or does e-mail communication by webphones amplify email communication by PCs? For example, people might start a webphone e-mail exchange while away from their PCs, but continue it later by PC when they are at home or work. To address this matter, we focus on the 25% of the Yamanashi respondents who use both webphones and PCs to send e-mail ($N = 251$).

We did not find any significant correlation between the frequencies of webphone and PC e-mail. That is, the amounts of webphone and Internet e-mail use are independent of each other and add on to each other.

When people can use both media to send e-mail, they tend to send more e-mail by webphones than by PCs (Table 28.1). For example, one-

Table 28.1 Frequencies of sending e-mail (%)

Webphones	PCs				
	No private e-mail sent in general	No e-mails sent yesterday	11 to 15 e-mails sent	6 to 10 e-mails sent	Total
No private e-mail sent in general	1.23	1.65	1.23	0.00	4.12
No e-mails sent yesterday	4.94	24.28	2.88	0.82	32.92
1 to 5 e-mails sent	9.88	20.58	13.99	0.00	44.44
6 to 10 e-mails sent	2.88	4.94	2.47	0.82	11.11
11 to 25 e-mails sent	2.06	2.06	1.23	0.41	5.76
26 to 50 e-mails sent	0.00	0.41	0.82	0.41	1.65
Total	14.07	20.56	7.88	1.00	100.00

$N = 243$; $\chi^2 = 40.88$, $p < 0.01$

[2] The per day estimates of frequencies of contact were translated from respondent-reported frequency codes. The original values were: 0 = no e-mail sent in general or no e-mail sent or received yesterday; 1 = 1–5 e-mails yesterday; 2 = 6–10 e-mails yesterday; 3 = 11–25 e-mails yesterday; 5 = 26–50 e-mails yesterday; 6 = more than 51 e-mails yesterday.

quarter of those using both webphones and PCs who sent 1–5 e-mails by their webphones did not send any e-mails by PCs, and 14% of dual webphone–PC users sent the same number of e-mails by webphones as by PCs. As we do not have process information, we cannot trace the sequencing of Internet communication between webphones and PCs.

28.4.2 Webphone and PC E-mail Users

There are large age differences in use of e-mail by mobile phone (Table 28.2). The frequency of sending personal e-mail by webphones declines dramatically with age. By contrast, the frequencies of sending e-mails by PC are not different across age.

Table 28.2 Demographic variables and perceived ability to use technology (multiple regression)

	Frequencies of sending e-mail by webphone		Frequencies of sending e-mail by PC	
	B	β	*B*	β
Gender (0 = female, 1 = male)	–0.241**	–0.159	–0.025	–0.037
Age (years) (reference = 20–29):				
30–39	–0.483**	–0.256	–0.045	–0.054
40-49	–0.579**	–0.317	–0.002	–0.002
50-59	–0.743**	–0.425	0.023	0.030
≥60	–0.688**	–0.293	0.035	0.034
Education (reference = middle school):				
High school	–0.017	–0.011	–0.048	–0.072
Some college	–0.065	–0.036	–0.043	–0.054
Undergraduate degree or more	–0.104	–0.055	0.036	0.043
Employment status (reference = full-time worker):				
Part-time worker	0.011	0.005	–0.010	–0.010
Self-employment	0.024	0.008	0.100**	0.074
Student	0.691**	0.130	–0.174**	–0.074
Home maker	–0.132	–0.060	0.011	0.011
Other type	–0.076	–0.028	0.016	0.014
Unemployed	–0.079	–0.020	–0.010	–0.006
Partner (0 = no, 1 = partner)	–0.234**	–0.138	0.004	0.005
Kids living together (0 = no, 1 = yes)	0.052	0.035	–0.026	–0.039
Perceived ability to use technology	0.033**	0.207	0.026**	0.369
Constant	0.786		–0.231	
Adjusted R^2	0.350		0.122	
N	969		969	

**Significant at 0.01.

The percentage of people using both webphones and PCs declines markedly with age. A large majority (92%) of young adults in their 20s access e-mail through the use of webphones, About half (46%) of the respondents in their 20s use both the webphone and PC, and an equal percentage, 46%, only use webphones. In sum, 92% of all respondents in their 20s use webphones for e-mail, i.e. are 1.9 times more likely to be webphone users than the average respondents. Somewhat older adults in their 30s also are disproportionately high webphone users, comprising 29% of all webphone users even though they are only 20% of the sample, and are 1.4 times more likely to be webphone users than the average respondents. The disproportionate use of webphones by younger adults is so great that adults aged 20–39 years own two-thirds (68%) of all webphones, even though they comprise only two-fifths (41%) of the sample (for more details on the characteristics of the sample, see Miyata et al., 2005)

In contrast to low webphone e-mail use by adults over 40 years old, the percentage of respondents using only PCs to send e-mail increases until the age of 60 years. Moreover, older adults are more apt to use only PCs for e-mail, whereas younger adults are more apt to use both webphones and PCs. Not only do the ways of accessing the Internet vary by age, but so does the frequency of sending e-mail. Older Yamanashi residents, aged 50 years or more, are much less likely to send e-mail or to use the Internet at all.

Gender is also associated with how people send e-mail. Women tend to send more private e-mails by webphones. Their higher level of webphone use may well counterbalance their historically low PC use (Ono and Zavodny, 2004). By contrast, many middle-aged men make heavy use of their PCs at work and have less need for webphones. Nevertheless, both women and men in their 20s are equally likely to use webphones – and to use them frequently. However, it is a different story for those who are no longer in their 20s. Men over 30 years old are somewhat more likely than similarly aged women to use both webphones and PCs: 38% of men in their 30s use both webphones and PCs to e-mail, compared with 33% of women in their 30s. Whereas 35% of men in their 40s use both media, only 21% of women in their 40s use both (Miyata et al., 2005).

Respondents with higher levels of technological skill are more likely to send greater numbers of e-mails – both by webphones and by PCs.[3] This is in accord with a national Japanese survey that found that people using both webphones and PCs report higher levels of skill in using keyboards

[3] Self-perceived technical confidence was measured by a scale ranging from 7 to 21. The scale was compiled from seven questions that asked respondents to rate their ability to do certain technical tasks: sending a fax, recording television programs using a VCR, sending e-mails by computer or webphone, typing with a keyboard, using a search engine from a computer or webphone, downloading a file from a computer or webphone, and installing a computer program.

(Ikeda, 2002). However, the respondents' self-perception of technological skill has a stronger effect on the number of e-mails sent by PCs than on that sent by webphones. The higher the respondents rated their ability to use various kinds of technology, the more they tend to send e-mails by PC: the effect of self-perceived technical confidence on the number of e-mails sent by PCs is stronger than the effect on the number of e-mails sent by webphones.

Students are likely to send more webphone e-mails than full-time workers, but less PC e-mail than full-time workers. Self-employed persons sent more e-mails by their PCs than full-time workers.

Thus webphone e-mails tend to be sent by young people who often do not have much technological skill. By contrast, PC e-mails tend to be sent by older men who are more apt to be self-employed and to have more technical skill.

28.4.2 Strong, Supportive and Weak Ties

Does the Internet help maintain the social networks that are so important in the age of networked individualism? In a society that has moved from groups to networks, we would expect that both webphone and PC e-mails would be used to contact large numbers of somewhat specialized ties: both strong intimate ones and weaker ones of acquaintanceship.

As an approach to this matter, we examine two properties of social networks: the number of addresses kept in webphones or PCs and the number of supportive ties. The respondents were asked to report the number of e-mail addresses kept in their webphones and their PCs.

The respondents reported an average of 30.2 addresses in their webphones and 16.9 addresses in their PCs. Most of the ties in both their webphone and PC address books are weaker ties of acquaintanceship rather than stronger ties with close friends and relatives. This is because respondents report that they exchange supportive e-mail with only one to three network members, presumably those with whom they have strong ties. Although this may be a low estimate, as earlier Japanese data show a mean of five network members to be strong ties (Otani, 1999), as do Canadian data (Wellman, 1979; Wellman and Wortley, 1990), the inference is clear: only a few names in address books are strong, supportive ties. Most ties are weaker, but still significant enough to be entered into address books.

Regression analysis shows that the more e-mails people send by webphones, the more names they keep in their webphone address books (Table 28.3). Moreover, heavy PC e-mail users (those who sent 6–10 messages "yesterday") also keep more names in their webphone address books, indicating that they too have a larger number of weak ties in their networks.

Table 28.3 Number of social ties through webphones or PCs (regression analysis)

Predictors	Number of addresses kept in webphone		Number of addresses kept in PC		Number of supportive ties that have an e-mail connection	
	B	β	*B*	β	*B*	β
Gender (0 = female, 1 = male)	−4.967	−0.056	4.622	0.065	−0.150	−0.024
Age (years) (reference = 20–29)						
30–39	−14.017*	−0.145	4.514	0.057	−0.409	−0.060
40–49	−9.289	−0.086	2.341	0.028	−0.799	−0.110
50–59	−20.764*	−0.133	−4.798	−0.046	−1.079*	−0.116
60–65	−35.077	−0.067	−1.534	−0.005	−1.839	−0.039
Education (reference = Middle School):						
High school	−7.208	−0.081	5.035	0.069	0.382	0.061
Some college	0.546	0.006	3.789	0.046	0.845	0.121
Undergraduate degree or more	−3.360	−0.032	10.066	0.135	0.773	0.111
Employment status (reference = full-time worker):						
Part-time worker	9.929	0.078	−4.395	−0.036	−0.068	−0.007
Self-employment	24.986*	0.094	7.976	0.050	0.576	0.038
Student	29.341**	0.127	−10.832	−0.058	0.854	0.050
Home maker	0.054	0.000	−6.347	−0.051	1.686**	0.151
Other type	−1.697	−0.010	−8.512	−0.059	0.327	0.027
Unemployed	−3.790	−0.015	−4.815	−0.023	−0.858	−0.046
Partner (0 = no, 1 = partner)	−3.208	−0.036	2.850	0.039	−0.369	−0.058
Kids living with parents (0 = no, 1 = yes)	−7.602	−0.086	1.889	0.027	−0.920*	−0.149
Associations	33.028**	0.186	8.693	0.060	1.688**	0.139
Number of e-mails sent by webphone yesterday (reference = non-users)						
1–5	6.744	0.076	0.246	0.003	0.749*	0.119
6–10	23.220**	0.166	8.706	0.073	1.662**	0.156
>11	24.503**	0.141	6.947	0.047	2.557**	0.193
Number of e-mails sent by PC yesterday (reference = non-users):						
1–5	1.812	0.013	29.630**	0.332	0.857*	0.091
6–10	37.491*	0.092	45.258**	0.179	0.663	0.022
Constant	−4.003		−13.011		−0.094	
Adjusted R^2	0.189		0.161		0.186	
N	421		347		505	

*, Significant at 0.05; **, significant at 0.01.

Does the immediacy of portable webphones or the range of PCs facilitate the availability of social support? To measure the number of supportive ties that have an e-mail, respondents were asked to report the number of network members that would give them words of encouragement (emotional support), provide them with a small amount of money (financial support) or aid them in tasks such as moving or providing goods and services (instrumental support). Respondents reported that an average of 2.8 network members were in contact by e-mail.

We are particularly interested in the characteristics of e-mail-using people who have a high number of strong, supportive ties in their network. Regression analysis shows that age, the number of e-mails exchanged, employment status and household composition are all significantly associated with the number of supportive strong e-mail ties (Table 28.3).

E-gregariousness and supportiveness are related. The more e-mails sent "yesterday" by either webphones or PCs, the greater is the number of supportive ties that are linked by email (although not necessarily in contact "yesterday"). This suggests that the Internet facilitates larger, more actively supportive social networks. It is also congruent with Canadian data showing that people with larger social networks get more social support from network members, both per capita and in aggregate (Wellman and Gulia, 1999; Wellman and Frank, 2001).

Webphone e-mails have a different characteristic than PC e-mails. Not only are they usually used to contact close friends and relatives (Miyata et al., 2005), but Table 28.3 shows that the frequency of webphone contact is more strongly associated with socially supportive ties than is the frequency of PC contact.

There are also demographic correlates with socially supportive e-mail ties. People in their 50s have more strong, supportive ties than those in their 20s. Perhaps they accumulate over time like barnacles! Those who send a high number of e-mails per day by webphones or PCs also have a relatively higher amount of strong, supportive e-mail ties. People with children living at home have a relatively lower number of strong, supportive ties compared with those without children living at home. Homemakers have more strong supportive ties than full-time workers.

28.4.4 Local and Long-distance Contact

The Internet has frequently been touted as supporting far-flung ties, and even "global villages" [to use Marshall McLuhan's phrase (McLuhan, 1962)]. In practice, physical body needs and the tendency for birds of a feather to flock together (and with similar needs) mean that the Internet has been used extensively for both local and long-distance relationships (Hampton and Wellman, 2003).

Table 28.4 Distance between sender and receiver of e-mails

	By both webphone and PC		By webphone only	By PC only
E-mails by webphone	E-mails by webphone	E-mails by PC		
Living together	19.1	11.5	18.1	0.0
Less than10 minutes away by car	12.7	4.9	13.5	3.8
Less than 1 hour away by car	42.7	39.3	46.8	34.6
Less than 5 hours away by car	19.7	34.4	18.1	38.5
More than 5 hours away by car	5.1	4.9	2.9	15.4
Living abroad	0.6	4.9	0.6	7.7

In Yamanashi, e-mail sent by webphone tends to be more local than e-mail sent by PC. Those who only use webphones send e-mail to people living an average of about 10 minutes away by car (Table 28.4). By contrast, those who only use PCs send e-mail to people living about 1 hour away by car. Those respondents who own both a webphone and a PC use their webphone to e-mail people living less than a 60-minute drive away, and use their PC to e-mail people living between 1 and 5 hours drive away.

28.5 Japan and the Turn Towards Networked Individualism

28.5.1 Mobile-ized Japan

There is significant variation in the amount and kinds of contact with social networks by webphone and PC. More e-mails per day are made through the use of webphones than through PCs. People use webphones more than PCs to send e-mails, even when they have both webphones and PCs available.

Using webphones and PCs to send e-mails is additive: high (or low) use of one medium does not mean high (or low) use of the other. This is similar to North American research showing that e-mail use adds on to face-to-face and telephone contact (Quan-Haase et al., 2002). The result is a greater overall volume of contact. In Japan, where webphone e-mails have been added to the communication mix, they apparently increase the overall amount of contact by adding on to PC e-mail and presumably to face-to-face and telephone contact. This suggests that the Japanese may be among the most communication-connected people in the world.

Yet the two media are used somewhat differently. E-mail that is exchanged via webphones tends to be with people who are nearby,

whereas e-mail that is exchanged via PCs tends to be with people who are further away. Webphone address books are larger than PC address books, but webphone e-mailing is done more selectively. Webphone e-mail tends to be with people who are nearby, whereas PC e-mail tends to be with people who are further away as well as nearby. Webphones are most often used to send short, quick messages to close friends and family, allowing them to keep emotionally connected and organize meetings, or to those who are nearby, facilitating arrangement of everyday activities. By contrast, PC-based e-mail messages are more apt to be communications that are not as connected to imminent physical get-togethers.

Those who send many webphone e-mails have more supportive ties. Here, too, webphones appear to be especially used for supporting intensive relationships with loved ones and other strong ties. They are interfaces for intimate contact, and enable intimates to be accessible anywhere and anytime.

The use of webphones varies by age and gender. Those who sent more e-mails by webphones tend to be in their 20s and 30s. More women than men use webphones to send e-mail. In addition to webphones, people in their 20s and 30s are also heavy users of PCs. Many are dual users of both webphones and PCs. Between the ages of 30 and 59 years, there is an increase in the proportion of respondents who exchange e-mail through the use of PC only.

Our statistical findings fit ethnographic research showing that young Japanese use webphones to send quick e-mails to nearby good friends. For example, Ito (this volume, Chapter 9) reports that mobile phones afford Tokyo youth a few important advantages. The ability to send short messages at any time allows them to keep in constant contact with friends, strengthening their social networks, giving the feeling of "ultra-connectedness". This sort of communication typically occurs with only a small number of friends (between two and five), at an extremely high frequency. At the same time, typing quick messages gives a new kind of freedom, as it can be done somewhat covertly, without alerting parents. Contacting friends can occur late at night while parents are sleeping, something not so easily done through a regular landline phone. These kinds of contact may simply be about trivial matters, used to maintain a feeling of connectedness, or about arranging things such as asking a spouse to pick up food on the way home from work. The mobile nature of webphones also makes them perfect for arranging meetings or changing plans at the last second (Smith, 2000; Ling and Yttri, 2002). As typing messages is more difficult through a webphone than a PC, we believe that respondents reserve PC e-mail for richer, in-depth contact with those who are living at a distance.

The advantages that webphones offer Japanese youth are probably similar to the advantages that ordinary mobile phones (those that cannot be used to access the Internet) offer young people in other countries. Youths

adopt mobile phones worldwide to increase their autonomy and the quality of their ties with friends. For example, European youths are more likely than their parents to use mobile phones to build their social networks and to tell parents their whereabouts (Ling, 2004). Furthermore, in many developed countries, mobile phones have become so incorporated into youth culture that exchanges of text messages, airtime and even mobile phones themselves have become heavily reciprocated, binding youth together. Text message exchanges are often incorporated into face-to-face contact with peers during "hang-out time". When messages and phones are shared among the group, they add to the interaction of the entire group rather than only of their owners (Taylor and Harper, 2003).

Will young users continue to rely on webphones as they grow older? On the one hand, the desire to be in constant contact with friends may dissipate as young adults enter more instrumental relationships at the workplace and save their recreational time for contact with spouses and family at home. On the other hand, heavy habitual use of this technology between friends and family may continue as people age and continue to integrate webphones into their work and domestic relationships.

It is probable that within a short time, the great majority of Yamanashi residents will use both webphones and PCs to send messages. Hence those respondents who mix media by using both webphones and PCs are a harbinger of this future. Not only do such dual-mode users have more strong and weak ties with whom they can exchange e-mail, but they are also in more frequent contact with them. Moreover, those who exchange higher numbers of e-mails tend to have a greater number of strong ties.

Our Yamanashi research is in accord with research done in North America and Europe showing that the Internet is not a self-contained world (Castells et al., 2003; Chen et al., 2002; Quan-Haase et al., 2002; Boase et al., 2003). The Internet is another means of communication that is being integrated into the regular patterns of social life. Rather than operating at the expense of the "real" face-to-face world, the Internet is an extension, with people using all means of communication to connect with friends and relatives.

The Yamanashi study highlights how different forms of computer-mediated communication are used for different purposes. Webphones are most often used to send short, quick messages to those who are physically close by. Webphones are also used to maintain strong ties with people who are socially close (see also Rivière and Licoppe, 2003). However, webphones are not used much to contact weaker ties or to develop more diverse networks. This may be because webphones are not well suited to provide connections to Internet sites where weak tie relationships may be formed, such as chat rooms and issue-oriented sites. Then again, there may be a population cohort effect because heavy users of e-mails by webphones are younger adults who may not be as interested in discussing issues as are middle-aged and older Japanese adults.

Our results call into question the traditional stereotype of Japan as a closed, bounded society (see also Otani, 1999). We find people on the move, getting information, making arrangements and contacting friends and relatives through wireless webphones and wired PCs. It is a trend towards mobile connectivity – which we call mobile-ization – that is becoming increasingly prevalent throughout Japanese society. As those in their 20s grow into middle-age, we expect their mobile communication to continue, although tempered by a heavier reliance on faster and more informative big-screen PCs at work and at home.

28.5.2 Changing Communication Networks; Changing Social Networks

Not only has the volume of communication increased, we suspect that the velocity of communication has also increased – in Japan and elsewhere in the Internet-using world. Although e-mail is asynchronous and does not necessitate instantaneous response, in practice many people respond quickly just as they would respond to voicemail. This may be especially true when e-mail is delivered by highly personal webphones that are becoming treated as people's "third skins" (Fortunati, this volume, Chapter 13). Moreover, distant network members who did not have much contact when limited to face-to-face, telephone (wired, mobile or webphone) or postal communication now keep in frequent touch: they rely on the Internet for a higher proportion of their contact than do community members who live nearby (Chen et al., 2002; Quan-Haase et al., 2002).

Hence the impact of computer-mediated communication will be that people have larger scale social networks: more people, more communication and at greater speed. Those Japanese who use both webphones and PCs to communicate have larger social networks, bigger address books and more frequent communication with these networks.

It is not clear whether the high use of computer-mediated communication will foster more densely knit communities – good for conserving resources – or more sparsely knit communities – good for obtaining new information and other resources. On the one hand, some characteristics of the Internet foster denser networks: the ability of Internet users to communicate simultaneously with multiple others, and the ease of copying and forwarding messages to others. In such cases, it is more likely for the friend of my friend to become my friend. On the other hand, as social networks become larger, it is often more difficult for them to maintain their density. As the size of the network increases arithmetically, the number of ties must increase geometrically to maintain the same level of density.

The turn towards networked individualism before and during the age of the Internet suggests more people maneuvering through multiple

communities of choice, where kinship and neighboring contacts become more of a choice than a requirement. This phenomenon started in Japan before the advent of the Internet (Nozawa, 1996; Otani, 1999), but webphones and PCs are probably accelerating it. Webphone users have the possibility of contacting whoever they want, whenever they want and wherever they are located. This suggests a fragmentation of community, with people increasingly operating in a number of specialized communities that rarely grab their entire, impassioned or sustained attention. The multiplicity of communities should reduce informal social control and increase autonomy. It is easier for people to leave unpleasantly controlling communities and increase their involvement in other, more accepting ones.

The personal communities of a networked world are both homogeneous and heterogeneous. An individual's partial communities will often be homogeneous, because search engines and discussions tend to find and link others with shared interests. Yet an individual's overall community will be heterogeneous because people have multiple interests, and those who share interests in one area are unlikely to share interests in others. Moreover, the properties of computer-mediated communication easily allow the inclusion of others in conversations through multiple address lines and chatting. This might ostensibly expand the scope of homogeneous discussion. In practice, the larger is the network, the more heterogeneous are the participants (Feld, 1982). Durkheimian social cohesion will be in dynamic tension with Simmelian interconnected marginality.

28.5.3 Dividing Digitally

Webphone and PC use may be fostering a complex digital divide. Social scientists have been discussing the digital divide for at least a decade: the gap between users and non-users of the Internet. More recently, they have highlighted the gap between those who merely have marginal access to the Internet and those who are active, informed users: what Castells (1996) calls "the interactors" and "the interacted" (see also Chen and Wellman, 2005). The Yamanashi study shows us that even the "interactors" may themselves have limited use of the power of the Internet when they only use webphones. Those less technically skilled use webphones rather than PCs. However, the limited screen size and access speed of webphones restrict the use of web sites, keyboard limitations constrain the length and complexity of messages and a more limited range of people are routinely contacted. Moreover, webphone messages are overwhelmingly segregated exchanges between two persons, whereas PC-based e-mail involves bringing multiple others into conversations. The result is a mixture of segregated, bilateral web conversations

integrated with group-based chats with physically present friends (Ito and Okabe, 2005).

Networked individualism should have substantial effects on social cohesion. Rather than people being a part of a hierarchy of encompassing polities like nesting Russian dolls, they belong to multiple, partial communities and polities. Some communities may be widely dispersed, such as those found in electronic diasporas linking far-flung members of emigrant ethnic groups (Mitra, 2003). Some may be traditional, local groups of neighbors with connectivity enhanced by listservs and other forms of computer-mediated communication. In a "glocalized" world, local involvements fit together with far-flung communities (Wellman, 2003), because the McLuhanesque "global village" (McLuhan, 1962) complements traditional communities rather than replaces them. This is especially true today when almost all computers are physically wired into the Internet, rooting people in their desk chairs. Even as the world goes wireless, the persistence of tangible interests, such as neighborly get-togethers or local intruders, keep the local important (Hampton and Wellman, 2003). Local and long-distance – webphone and PC – it is all one fluid and complex social network.

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