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Cross-cultural patterns in mobile phone use:
Public space and reachability in Sweden, the US, and Japan

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Abstract

Contemporary mobile phone technology is becoming increasingly similar around the world. However, cultural differences between countries may also shape mobile phone practices. This study examines a group of variables with respect to mobile phone use among university students in Sweden, the United States, and Japan. Key cultural issues include attitudes towards quiet in public space, personal use of public space, and tolerance of self-expression. Measures include the appropriateness of using mobiles in various social contexts, and judgments of what respondents like most and like least about having a mobile phone. Analysis revealed a number of culturally-associated differences, as well as a shared conflicting attitude towards the advantages and disadvantages of reachability by mobile phone.

Key words

culture, Japan, mobile phone, public space, reachability, self-expression, Sweden, United States

It was a glorious September day. One of the authors was walking up Aveny in Gothenburg, nearing the statue of Poseidon. As an American, she had been struck by how quiet Swedes seemed to be in public places. People talked on their mobile phones, but you rarely heard them. Suddenly she was assaulted by a booming voice from across the broad street. She spied a man striding quickly – and talking on his mobile phone. Surprised by the volume (though unable to discern actual words), she crossed the street and unobtrusively came up behind this violator of the Swedish mold. He turned out to be Italian.

This article draws upon data from a cross-national study of mobile phone use by university students to examine correlations between cultural variables and mobile phone usage. Our empirical focus is on Sweden, the United States, and Japan. We begin by laying out some of the cultural considerations we will be taking into account.

CULTURAL ISSUES AND MOBILE PHONE USE

Do national cultural profiles exist?¹ In the early nineteenth century, Alexis de Tocqueville thought so. He described Americans as being strong individualists (Tocqueville, 2000: 482-88) and as always chasing after new pleasures (pp. 511-14). Today we speak of taciturn Finns and loquacious Italians. Obviously, not all members of a cultural group fit national stereotypes, and there is cultural diversity within nation-states. Nonetheless, most societies can be characterized by parameters allowing us to predict, at least statistically, how members of those groups are likely to behave in many circumstances.

Do cultural patterns shape the way people use mobile phones? The Introduction to this themed section (Baron, 2009) reviews some of the literature on cross-cultural comparisons of ICTs (information and communication technologies). Granted, both handsets and

telecommunications services vary somewhat between countries. For example, American mobile phones (unlike those in most of the world) generally don't use pre-paid SIM cards; as of early 2008, Swedes could pay bus fares with their mobiles while Italians and Japanese could not. Yet on balance, the technology is becoming increasingly similar internationally.

It hardly follows, of course, that everyone with a mobile phone – even within a single national or cultural context – uses it the same way. Some keep their phones on at all times, while others only switch them on to make a call. Males and females may differ in their use of ICTs (Baron, 2004). In many countries, text messaging is rampant among teenagers and young adults, while older adults do more talking. How much expendable income you have may shape usage patterns (compare, for instance, rural farmers in Africa with wealthy urban Angolans; or consider Cubans, for many of whom talking on a mobile is far too expensive – Booth, 2009). Usage also may follow fashion: One year, having dozens of ring tones is de rigueur, while the next, no one cares. Similarly, even countries sharing cultural similarities (such as in Scandinavia) report marked differences in mobile phone practices (www.teliasonera.com).

Our goal in this article is heavily empirical: to sample mobile phone usage patterns in three countries, looking for similarities and differences. Ultimately, the purpose of cross-cultural analysis is to explain which differences might result from cultural distinctions. Such analysis is fraught with challenges. Differences might, for example, result from cost, amount of experience with the technology, or gender. Even more challenging is identifying legitimate cultural traits to measure. Large-scale cross-cultural comparisons of national cultures exist (e.g., Hofstede, 1997), but they may not accurately measure the cultural variables in which one is interested. They may also be out-of-date.

While it is important to avoid cultural stereotypes, social science field work has taught us that participant-observation and examination of popular culture can lead to useful hypotheses about cultural folkways. For the purposes of this study, our selection of cultural traits to compare with mobile phone practices has been somewhat informal, relying upon a combination of published literature and knowledge of everyday practices. While we do not claim methodological rigor for these selections, we suggest they give us a reasonable starting place for thinking about empirical correspondences between culture and mobile phones.

Sweden, the US, and Japan

Sociologist Åke Daun (2006) has explored how Swedes see themselves culturally, and how others perceive them. Among the traits he highlights are being taciturn, being punctual, avoiding conflict, and offering many ‘thank you’s’.

Daun also observed similarities between Swedish and Japanese cultural patterns. For instance, he describes the implicit Swedish injunction not to stick out in a crowd or to promote one’s own abilities. In Sweden, discussions of this point commonly lead to mention of Aksel Sandemose’ fictional town of Jante, which lived by such commandments (*Jante-lagen*) as ‘Thou shalt not fancy thyself better than *we*’ (Sandemose, 1936: 77). Daun notes that Japanese share similar attitudes regarding the importance of humility (Daun, 2006: 176).²

Outsiders to both cultures quickly notice other similarities. In Japan and Sweden, you remove shoes upon entering someone’s home. In neither country do you commonly utter the equivalent of ‘Excuse me’ when maneuvering past another person on a busy street. (Instead, you work your way around, in silence. By contrast, Americans are constantly saying ‘Excuse me’.)

There are also strong socio-political distinctions between Sweden and Japan: Sweden is a welfare state while Japan is not; there is much less social conformity in Sweden than in Japan. And so on.

Consider Sweden, the US, and Japan with respect to notions of appropriate behavior in public space:

	<u>Sweden</u>	<u>US</u>	<u>Japan</u>
quiet in public space	yes	no	yes
public space is for personal use	yes	yes	no
tolerance of self-expression	yes	yes	no

First: the issue of quiet in public space. Compared with many other cultures, both Swedes and Japanese are relatively quiet in public places. Americans tend to be noisier.

Next: making personal use of public space. Sweden (like other Scandinavian countries) tends to view outdoor areas as public space – even if legally owned by specific individuals. By *allmansrätten* ('every man's right', meaning 'right to roam'), individuals have the right, for example, to cross someone's backyard to reach their destination without seeking permission. In Japan, such behavior would be unthinkable. American attitudes offer something of a contradiction. In many states, Americans have the right to shoot if you trespass on 'their' property. Yet America is also committed to preserving vast tracks of land for public use.

Finally, tolerance of self-expression. Sweden is highly tolerant (e.g., of dress, in sexual matters), while Japan (at least traditionally) is more conformist. The US, like Sweden, is generally broadminded regarding individual self-expression. This American attitude, often bolstered by appeals to the US Constitution's First Amendment (guaranteeing freedom of speech) is reflected in the ways that many Americans conduct themselves in public space. They discuss private issues within hearing distance of others; they ignore traffic signals; they litter with impunity. Since quiet in public space, personal use of public space, and tolerance of self-

expression all potentially involve behavior while in the presence of others, we encompass all three with the cover term ‘public space’.

RESEARCH QUESTIONS

We identified four research questions (RQs) that might reveal cultural differences in mobile phone use. RQ1 (Frequency) provides a usage baseline:

RQ1: Are there cultural differences in the frequency with which Swedish, American, and Japanese university students use their mobile phones for talking and for texting?³

RQ2 (Public space) draws on survey questions relating to the three ‘public space’ issues we discussed above:

RQ2: Are there cultural differences among Swedish, American, and Japanese university students regarding use of mobile phones in public space?

RQ3 (‘like most’/‘like least’) used open-ended responses to assess user attitudes towards mobile phones:

RQ3: Are there cultural differences in what Swedish, American, and Japanese university students like most – and like least – about having a mobile phone?

RQ4 (Reachability) focuses on the double-edged sword of access – students seeking to communicate with others via mobile phones but disliking being reachable:

RQ4: Are there cultural differences in attitudes of Swedish, American, and Japanese university students regarding the fact that mobile phones make it easy to engage in communication but difficult to avoid it?

METHODOLOGY

General research design

Data were collected between November 2007 and May 2008 from 18-24 year-old university students in Sweden, the US, and Japan.⁴ These countries were selected because of cross-national diversity in their experience with ICTs, cultural diversity, and the availability of research sites in each location.

Students were recruited to complete an online questionnaire (using advertisements, word-of-mouth, information posted on course websites), resulting in a convenience sample. The questionnaire was constructed in English but then translated into Swedish and Japanese. The 10-minute survey was administered through a URL link to the professional version of SurveyMonkey, an online survey tool that can be implemented in multiple languages and scripts. In addition, focus groups were conducted in each country, though findings are not generally reported here.

Subjects

A total of 1223 university students completed the online questionnaire. Subjects were drawn from two universities (in different cities) in each country (Sweden: Gothenburg and Karlstad; US: Washington, DC and East Lansing, MI; Japan: Kyoto and Tokyo). The subject pool is summarized in Table 1.

Table1 Subjects completing online questionnaire from Sweden, the US, and Japan⁵

<u>Country</u>	<u>Total Subjects</u>	<u>Gender Distribution</u>		<u>Mean Age (in Years)</u>
		M	F	
Sweden	171	38.6%	61.4%	21.5
US	523	26.8%	73.2%	19.8

Japan	529	29.1%	70.9%	19.8
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Survey questions

The full survey (excluding demographic information) consisted of 54 quantitative (or scalar) questions and 6 open-ended questions. The present study focuses on the following subset of questions:

RQ1: Frequency of use

- Talking: ‘Yesterday, what was the combined total number of voice calls you made and received on your mobile phone? Include voicemails you left for other people and that you received.’
- Texting: ‘Yesterday, what was the combined total number of text messages you sent and received on your mobile phone?’

For both talking and texting, respondents were asked to select from a range of intervals (e.g., 0, 3-4, more than 30). Some intervals were later collapsed for purposes of analysis.

RQ2: Public space

One set of questions involving public space asked subjects to judge acceptability of talking or texting on mobile phones in five venues:⁶

- eating dinner at home with your family
- sitting with people you know in an informal café
- paying at the cash register at a convenience store
- walking in public
- riding a local bus, tram or subway

For each scenario, subjects were asked to select ‘always’, ‘usually’, ‘occasionally’, or ‘never’.

A second cluster of questions involved issues of loudness and topic of conversation. The first two questions were:

- ‘In your perception, do you speak more loudly on a mobile phone than when speaking with someone standing next to you?’

- ‘In your perception, do other people speak more loudly on a mobile phone than when speaking with someone standing next to them?’

Subjects were asked to select ‘always’, ‘usually’, ‘occasionally’, or ‘never’. The third and fourth questions probed whether subjects were bothered by other people’s behavior:

- ‘Are you bothered when other people are talking on their mobile phones and they are talking loudly?’
- ‘Are you bothered when other people are talking on their mobile phones and they are talking about personal affairs?’

Subjects were asked to select ‘very much’, ‘some’, ‘a little’, or ‘not at all’.

RQ3: ‘like most’/‘like least’

Subjects were asked two open-ended questions:

- ‘What is the one thing you like most about having a mobile phone?’
- ‘What is the one thing you like least about having a mobile phone?’

RQ4: Reachability

To analyze ‘reachability’, we extracted data from the ‘like most’ and ‘like least’ responses.

RESULTS

RQ1: Frequency of use

Findings regarding frequency of using voice and texting functions on the mobile phone are summarized in Table 2. Swedes had the lowest overall mobile phone usage. This finding is consonant with research conducted in 2004 by the telecommunications operator TeliaSonera (‘Use of Mobile Phones’, 2004), which reported Swedes used their mobile phones less than some of their Nordic neighbors. While Finns averaged 249 minutes of talk-time per month, Swedes used only 130 minutes. For text messaging, the Norwegian monthly average was 76, while Swedes averaged only 17 a month.

Table 2 Percent of mobile phone voice calls (made and received) and text messages (sent and received) on previous day*

		0-2	3-4	5-10	11-20	> 20
Sweden (N=171)	voice	36.3	25.7	31.6	5.8	0.6
	texts	34.5	21.6	30.1	9.9	2.9
US (N=523)	voice	22.0	26.6	38.4	10.5	2.5
	texts	27.0	13.4	26.8	15.1	17.8
Japan (N=529)	voice	62.4	23.1	12.7	1.3	0.6
	texts	8.5	9.8	29.5	25.3	26.8

*Because of rounding, several rows do not sum to 100%.

Table 3 focuses on high frequency (≥ 11) versus low frequency (≤ 4) usage. Americans were most likely to make heavy use (≥ 11 per day) of voice functions – twice that of Swedes and more than six times that of Japanese counterparts. The Japanese subjects made up with texting for their paucity of voice calls. Japanese were four times as likely as Swedes to be high-frequency texters, with Americans falling between them. For low-frequency texting, Swedes were three times more likely than Japanese to be low-volume users of texting, with Americans in between.

Table 3 Percent of high and low frequency voice calls and texting

		≥ 11 voice calls	≥ 11 texts
High	Sweden	6.4	12.8
	US	13.0	32.9
	Japan	1.9	52.1
Low	Sweden	62.0	56.1
	US	48.6	40.4
	Japan	85.5	18.3

RQ2: Public space

Considerations regarding use of mobiles in public space were clustered into two groups: appropriate places for use, and issues of loudness or being bothered.

Appropriate places for use

Subjects evaluated the acceptability of talking or texting in five different venues. Each venue can be viewed in cultural perspective, drawing upon our earlier cultural characterization of Sweden, the US, and Japan:

<u>Venue</u>	<u>Cultural Issue</u>
eating dinner at home with your family	tolerance of self-expression
sitting with people you know in an informal café	tolerance of self-expression
paying at the cash register at a convenience store	public space is for personal use
walking in public	public space is for personal use
riding local bus, tram, or subway	public space is for personal use

Table 4 summarizes the percent of subjects from each country who judged each of the five venues to be ‘always’ or ‘usually’ acceptable places to talk on their mobile phone, while Table 5 reports data regarding texting.

Table 4 Percent of subjects reporting ‘always’ or ‘usually’ acceptable to talk on mobile phone (by venue)

<u>Venue</u>	<u>Sweden</u> <u>(N=171)</u>	<u>US</u> <u>(N=523)</u>	<u>Japan</u> <u>(N=529)</u>
eating dinner at home with your family	14.6	3.5	13.0
sitting with people you know in an informal café	42.7	22.6	13.8
paying at the cash register at a convenience store	57.3	22.4	31.6

walking in public	97.7	94.6	73.7
riding a local bus, tram, or subway	89.5	67.1	4.0

Table 5 Percent of subjects reporting ‘always’ or ‘usually’ acceptable to text on mobile phone (by venue)

Venue	Sweden (N=171)	US (N=523)	Japan (N=529)
eating dinner at home with your family	35.7	22.8	22.7
sitting with people you know in an informal café	64.9	59.7	26.7
paying at the cash register at a convenience store	48.0	34.2	47.3
walking in public	95.3	84.3	76.2
riding a local bus, tram, or subway	98.2	94.3	83.7

The first two venues (eating at home, in an informal café) both involve the physical presence of familiar people. Swedish subjects were four times as likely as Americans (Sweden: 14.6%; US: 3.5%) ($p < .01$) to accept talking on a mobile phone while eating at home. Swedes were twice as comfortable as Americans talking in a café while with friends (42.7% vs. 22.6%) ($p < .01$). In fact, several American focus group participants noted feeling ‘left out’ if they were eating with someone who made or received a call. Outside of Swedes talking on their phones in an informal café, none of these percentages is particularly high. Therefore, another way of viewing these data is to say that the majority of Swedish, American, and Japanese subjects found it inappropriate to use voice functions under these two circumstances, with Swedes being the most tolerant.

While both Swedes and Americans were more comfortable talking in a café than at home with family, Japanese responses for the two venues were nearly the same (13.8% vs. 13.0%). One explanation may be that Japanese cafés are often fashionable places that people perceive as being more ‘public’ than Swedes or Americans view comparable spaces.⁷

Text messaging while eating at home or at a café with friends was more acceptable across the board. Again, Swedish participants led those comfortable with the practice at home (Sweden: 35.7%; US: 22.8%; Japan: 22.7%) ($p < .01$). Swedes were far more comfortable texting in an informal café than were Japanese (64.9% vs. 26.7%) ($p < .01$) and slightly more comfortable than Americans (64.9% vs. 59.7%). Americans were far more comfortable texting than talking on their mobiles at the family dinner table (texting: 22.8%; talking: 3.5%) ($p < .01$).

The discrepancy between American and Japanese acceptance of texting in cafés when sitting with friends is stark. Americans were twice as likely as Japanese (US: 59.7%, Japan: 26.7%) ($p < .01$) to approve of the practice. Again, the explanation probably lies in the fact that Americans are more likely to perceive a venue such as Starbucks as casual space (inviting personal use), while Japanese may see the coffee shop as public space requiring public behavior.

Collectively, these data are largely consonant with the cultural description of Swedes and Americans being more tolerant of self-expression (here, communicating with non-present others) than Japanese. The low figure for Americans talking on their phones while at the family dinner table might partly reflect the fact that many American families rarely eat dinner together.⁸ When they do, the occasion becomes, by default, more formal.

The next three questions involved use of mobile phones while in general public space. Swedish subjects were nearly three times as likely as Americans (Sweden: 57.3%; US: 22.4%) ($p < .01$) and almost twice as likely as Japanese (31.6%) ($p < .01$) to talk on their phones while paying at a convenience store cash register. Regarding texting, Swedes and Japanese were essentially on par (Sweden: 48.0%; Japan: 47.3%), followed by Americans (34.2%).

The fact that one out of three Japanese subjects accepted talking on a mobile while paying at a cash register (compared with just over one out of five Americans) may reflect more general

public behavior of many Japanese regarding people they don't know. For example, during morning and evening rush hour, many Japanese shove their way onto commuter trains, ignoring the social decorum for which the Japanese are famous in face-to-face interactions. People on trains are, by contrast, silent strangers. Perhaps university-aged Japanese students view convenience-store clerks as silent strangers as well.

Among Swedish subjects, while 57.3% felt it was appropriate to talk while conducting a financial transaction, only 48.0% indicated texting was appropriate. Focus groups suggested the problem with texting was more physical than social: It is easier to multitask between talking on the phone and paying than between texting and paying. Some subjects may have taken the word 'acceptable' to mean 'physically reasonable', not 'socially appropriate'. As for discrepancies in perceptions regarding texting, the Americans had the lowest average experience in texting (Sweden: 6.8 years; Japan: 5.5 years; US: 3.5 years), perhaps making it more challenging to text (i.e., than for Swedes or Japanese) while conducting a financial transaction.

When walking in public, Swedish and American subjects overwhelmingly judged it acceptable to talk on their mobile phones (Sweden: 97.7%; US: 94.6%). The Japanese trailed significantly behind (73.7%) (Sweden vs. Japan, US vs. Japan: $p < .01$). (Note that when a similar question was asked by Misa Matsuda of Japanese 18-24 year-olds several years ago, the approval response was only 48% -- Baron, 2008:136). These findings are consonant with our initial cultural observation that in both Sweden and the US, it is more socially acceptable to make private use (here, talking on the phone) of public space than in Japan.

Finally, we considered acceptability of talking or texting while riding local public transportation. The starkest difference for talking was between Sweden and Japan: 89.5% acceptance versus 4.0% ($p < .01$). The Swedish data offer one more example of comfort in

conducting private business in public space. In Japan, the finding directly reflects explicit social pressure not to speak on a mobile phone while riding on public transportation.⁹ In both subway cars and buses, ubiquitous signs admonish riders not to speak on their phones (Ito, Okabe and Matsuda, 2005).

The US situation is interesting for a different reason. More than half the American data were collected in Washington, DC, which is served by a well-used subway network. While there are no social strictures against using mobile phones on the subway (either for talking or texting), reception is often poor. The comparatively low percent of Americans (67.1%) who found it acceptable to talk on their mobile phones while on local transportation may reflect the fact that calls are commonly dropped while moving through subway tunnels.

Swedish, American, and Japanese subjects all found it more acceptable to text on local transportation than to talk. The difference between talking and texting is sharpest for Japan (talking: 4.0%; texting: 83.7%), reflecting social norms.

Loudness/being bothered

Our second set of attitudinal measures involved voice modulation and conversational topic in public space. All questions correlate with cultural parameters:

<u>Question</u>	<u>Cultural Issue</u>
Do <u>you</u> speak more loudly on a mobile phone?	quiet in public space
Do <u>other people</u> speak more loudly on a mobile phone?	quiet in public space
Are you bothered when others speak loudly?	tolerance of self-expression
Are you bothered when others talk about personal affairs?	tolerance of self-expression

Table 6 presents findings involving quiet in public space. Swedish and American students had similar perceptions. While one-quarter of each cohort judged themselves to speak more loudly on a mobile phone than face-to-face, half the subjects passed such judgment on other

speakers. Japanese respondents were less prone to perceive themselves – or others – as speaking more loudly on mobile phones (self: 9.3%; others: 10.0%).

Table 6 Percent of subject responding ‘always’ or ‘usually’ to questions regarding loudness on mobile phone

Question	Sweden (N=171)	US (N=523)	Japan (N=529)
Do <u>you</u> speak more loudly on a mobile phone?	24.0	23.9	9.3
Do <u>other people</u> speak more loudly on a mobile phone?	50.3	54.5	10.0

We earlier suggested that both Swedes and Japanese are generally quieter in public space than Americans. While the Japanese data support this characterization, Swedish subjects perceive themselves – and others – to be noisy on their mobile phones (paralleling the Americans). Several factors are relevant in interpreting our findings. First, we did not ask subjects to rate (nor did we independently measure) overall volume level of face-to-face conversations. If these baselines are lower in Sweden than in the US, mobile phone volume in Sweden could be lower as well. Second, anecdotal evidence suggests that over the past decade, as Americans have become increasingly comfortable using mobile phones, their overall volume level has decreased.

Table 7 summarizes data regarding tolerance of self-expression by others with respect to loudness and topic. Swedish subjects were the least bothered by other people’s mobile phone conversations – either because of volume or topic. Only 33.9% of Swedes indicated being bothered ‘very much’ when other people spoke loudly – compared with 61.0% of Americans and 71.6% of Japanese. Similarly, only 19.3% of Swedes were very bothered by hearing others talk about personal affairs. These findings are consonant with the description of Swedes as tolerant of self-expression.

Table 7 Percent of subjects indicating being bothered ‘very much’ by others’ mobile phone behavior

Question	Sweden (N=171)	US (N=523)	Japan (N=529)
Are you bothered when others speak loudly?	33.9	61.0	71.6
Are you bothered when others talk about personal affairs?	19.3	34.4	23.1

Americans – often described as tolerant of self-expression – were bothered nearly twice as much as their Swedish counterparts in both situations. This disparity between ideology and practice has many analogues in everyday life: Americans may believe in the Bill of Rights yet support book censorship or wiretapping without search warrants. While free speech is a cherished American right, many subjects were bothered when others spoke freely – and loudly – on their mobile phones.

Japanese students were most bothered (71.6%) when others around them spoke loudly on mobiles. Recall that Japanese are least likely to talk on their mobile phones in general – especially in public. Moreover, Japan values quiet in public space (including in face-to-face conversation). From an early age, Japanese children are trained not to engage in *meiwaku* behavior – behavior bothersome to others. Speaking loudly in public is one form of *meiwaku* behavior, as is speaking at all on a mobile while riding local public transportation. Thus, Japanese subjects were probably more sensitive than Swedes or Americans to loud mobile phone conversations.

However, this logic seems not to hold when considering the number of Japanese who were very bothered when others discussed personal affairs on mobile phones. About one-quarter (23.1%) found such conversations very bothersome, compared with 19.3% of Swedes and 34.4% of Americans. The explanation may lie in another aspect of Japanese culture: Ignore people you

don't know. As noted earlier, Japanese subjects were more likely than Americans to talk or text while paying at a cash register. We hypothesized that since the Japanese didn't know the clerk, there was diminished need to engage in polite behavior. On buses and commuter trains, Japanese turn social avoidance into a fine art – fiddling with non-voice functions of their mobile phones or pretending to sleep. thereby isolating themselves from the crowd. Just so, Japanese students may be more skilled than American counterparts at ignoring other people's mobile phone conversations. By contrast, Swedes are probably less likely to care, given that Swedish participants were the most comfortable speaking on their phones in public space.

RQ3: 'like most'/'like least'

RQ3 probed what subjects liked most and liked least about their mobile phone. Responses were coded into six major categories (Physical Attributes/Functions, Communication, Evaluation, Cost Issues, Safety Issues, No Comment), and as well as divided into subcategories. Figure 1 presents categories and examples.

Major category	Sample subcategories
Physical attributes/functions	<p>LIKE MOST: multipurpose device (e.g., ‘I have everything I need in my hand’), entertainment (e.g., ‘music’)</p> <p>LIKE LEAST: ring tones (e.g., ‘annoying ring tones’), voicemail (e.g., ‘I absolutely hate voicemails’)</p>
Communication	<p>LIKE MOST: contact (e.g., ‘connected to the world’), I contact others (e.g., ‘contact people anywhere’), others contact me (e.g., ‘can be reached no matter where I am’), written language (e.g., ‘able to send SMS’)</p> <p>LIKE LEAST: contact (e.g., ‘can’t be out of touch’), I contact others (e.g., ‘I have a hard time calling the people I probably shouldn’t call’), others contact me (e.g., ‘want to be undisturbed’), written language (e.g., ‘texting is stupid’), disruption of the social order (e.g., ‘people are on the phone too often and too loud’, ‘ringing at times it should not have rung’)</p>
Evaluation	<p>LIKE MOST: mobility (e.g., ‘the freedom’), convenience (‘easy to use’), general evaluative terms (e.g., ‘It is practical’)</p> <p>LIKE LEAST: mobility (e.g., ‘have to carry it around’), dependency (e.g., ‘constantly and obsessively checking’), equipment issues (e.g., ‘easily breaks’, ‘remembering to charge it’), transmission issues (e.g., ‘bad connection’), general evaluative terms (e.g., ‘annoying’, ‘makes my life more complicated’)</p>
Cost issues	<p>LIKE MOST: affordability (e.g., ‘can call for free on nights/weekends’)</p> <p>LIKE LEAST: affordability (e.g., ‘costs too much’)</p>
Safety issues	<p>LIKE MOST: general issues (e.g., ‘security’, ‘feel safer driving long distances’)</p> <p>LIKE LEAST: safety of handset (e.g., ‘theft’, ‘the risk of losing it’), radiation (e.g., ‘causes brain tumors’)</p>
No comment	<p>LIKE MOST: [no examples]</p> <p>LIKE LEAST (e.g., ‘N/A’, ‘no disadvantages’)</p>

Figure 2 Coding for ‘like most’/‘like least’ open-ended questions

Table 8 summarizes responses regarding what subjects liked most and liked least about having a mobile phone.

Table 8 Open-ended responses to ‘like most’ and ‘like least’ questions*

	Sweden (N= 171)		US ¹⁰ (Like most: N= 521) Like least: N=522)		Japan ¹⁰ (Like most: N=529) Like least: N=525)	
	N	%	N	%	N	%
LIKE MOST						
Physical attributes/funcs	5	2.9%	25	4.8%	151	28.5%
Communication	140	81.9%	341	65.5%	249	47.1%
Evaluation (positive)	14	8.2%	97	18.6%	107	20.2%
Cost issues	0	0.0%	2	0.4%	5	0.9%
Safety issues	12	7.0%	56	10.7%	17	3.2%
No comment	0	0.0%	0	0.0%	0	0.0%
LIKE LEAST						
Physical attributes/funcs	5	2.9%	22	4.2%	76	14.5%
Communication	81	47.4%	259	49.6%	143	27.2%
Evaluation (negative)	44	25.7%	150	28.7%	184	35.0%
Cost issues	17	9.9%	57	10.9%	95	18.1%
Safety issues	17	9.9%	7	1.3%	11	2.1%
No comment	7	4.1%	27	5.2%	16	3.0%

*Because of rounding, not all columns sum to 100%

For ‘like most’, topping the list in all three countries was communication. Swedish subjects significantly outnumbered Americans (Sweden: 81.9% of all responses; US: 65.5%) ($p < .01$), but both significantly outnumbered Japan (47.1%) ($p < .01$). Swedish subjects were less likely to express positive evaluative judgments than Americans or Japanese (Sweden: 8.2%; US: 18.6%; Japan: 20.2%). A striking cross-cultural anomaly was in subjects reporting that they

‘liked most’ a physical attribute or function of their mobile phone. While responses for both Swedes and Americans were less than 5%, Japanese responses were 28.5%. Examining the physical attributes/functions data by subcategories revealed that Japanese subjects focused on the fashionable nature of the phone (9.5% of all ‘like most’ responses’), size of the handset (2.8%), and online connectivity (3.2%) – while these combined categories garnered less than a 1% response rate from either Swedish or American respondents. While we cannot conclude from these data that Japanese students are less enamored with communication functions than their Western counterparts, it is clear that the Japanese focus on other features of the phone as well.

For the ‘like least’ question, communication again dominated in the Swedish and American data (Sweden: 47.4%; US: 49.6%), with no significant difference between the two countries. But once again, the Japanese were anomalous in a number of ways. The most striking concerned ‘like least’ judgments regarding communication: While nearly 50% of Swedes and Americans found communication to be what they ‘liked least’ about mobile phones, only half that number (27.2%) of Japanese offered this response ($p < .01$). Japanese subjects were also most likely to voice negative evaluations (Sweden: 25.7%; US: 28.7%; Japan: 35.0%). The overwhelming majority of Japanese concerns involved feeling dependent upon their phones – which is not surprising, given their high volume of text messaging (see Tables 2 and 3). Finally, Japanese subjects complained about physical attributes of their phones (14.5%) and about cost (18.1%). Note that pricing plans in Japan can be quite complex, involving not only voice and text messaging but internet allocations.

One subcategory of communication yielded an interesting cross-county comparison with respect to use of phones in social space. Japanese respondents complained the most about mobile phones disrupting the social order (e.g., ‘people disregard manners because of mobile phones’).

While 7.8% of Japanese subjects voiced such complaints, only 1.8% of Swedes and 4.2% of Americans did so. These findings are consonant with our earlier quantitative data (Table 7) that Americans were twice as likely as Swedes to be bothered when other people were speaking loudly, but Japanese were even more bothered than Americans.

RQ4: Reachability

Our final question asked whether students evidenced conflicts regarding the reachability that mobile phones afforded them: seeking communication with others, while disliking the fact that phones made them reachable. To explore reachability, we re-coded the relevant ‘like most’ and ‘like least’ responses (drawing upon the communication and evaluation categories) into a single ‘reachability’ category that included comments about being able to reach others (e.g., ‘talking to whomever I like’), about others being able to reach them (e.g., ‘can always be found’), and comments where directionality of contact was not specified (e.g., ‘text messaging’). Table 9 summarizes the findings.

Table 9 ‘Like most’ judgments regarding reachability

	Sweden (N= 171)		US ¹⁰ (Like most: N= 521) Like least: N=522)		Japan ¹⁰ (Like most: N=529 Like least: N=525)	
	N	%	N	%	N	%
Total ‘like most’ responses related to reachability	151	88.4%	434	83.3%	341	64.5%
Total ‘like least’ responses related to reachability	97	56.7%	296	56.7%	193	36.8%

Consider first Sweden and the US. Reachability issues accounted for the majority of ‘like most’ judgments in both countries, with responses slightly stronger in Sweden (Sweden: 88.4%; US: 83.3%). Since Swedes in the study were also more likely than Americans to mention communication issues in their ‘like most’ responses (Table 8), the disparity between countries is not surprising. However, in Sweden and the US, reachability proved a double-edged sword. More than half the respondents from both countries (Sweden: 56.7%; US: 56.7%) identified some aspect of reachability as what they ‘liked least’ about having a mobile phone. As with the communication scores for the ‘like least’ question (Table 8), these negative responses were matched across countries.

With regard to reachability, our Japanese data present a different profile. While 83-88% of the Swedish and American subjects ‘liked most’ issues concerning reachability, the Japanese response was only 64.5% ($p < .01$). Similarly, while 57% of Swedish and American subjects liked reachability least, for Japanese subjects that number was only 36.8% ($p < .01$).

DISCUSSION

This study has presented a first look at cross-cultural data on mobile phone use by a sample of 18-24 year-old university students in Sweden, the US, and Japan. Our central question has been the extent to which cultural issues shape differential use of largely the same technology. We analyzed quantitative and scalar data, as well as open-ended responses regarding what subjects liked most and least about their mobile phones, including reachability. Figure 2 aggregates major findings with respect to the four research questions.

Frequency of use (RQ1)	<ul style="list-style-type: none"> ▪ American subjects talked the most on their mobile phones, and Japanese the least. ▪ Japanese were the most prolific texters. ▪ Swedes were moderate users of both voice and texting functions.
<p>Public space (RQ2, RQ3)</p> <p>Appropriate places to talk/text</p> <p>Loudness/being bothered</p>	<ul style="list-style-type: none"> ▪ Swedish subjects were the most comfortable talking and texting on mobile phones when in the company of people they knew (eating dinner with family at home, with friends at a café) or in public space with strangers (paying at a cash register, walking in public, riding local transportation). ▪ Japanese were most reticent to talk while riding local transportation, but also hesitant to talk or text while among friends at a café. ▪ Japanese were comparatively comfortable talking and texting while walking in public, but less so than Swedes or Americans. ▪ Swedes and Americans were twice as likely to judge other people as speaking louder (on mobile phones than face-to-face) than they judged themselves to do so. Japanese saw less difference – both for themselves and others. ▪ Japanese (followed by Americans) were most bothered when others spoke loudly. ▪ Americans were most bothered when others discussed personal affairs.
<p>Communication issues (RQ1, RQ2, RQ3)</p> <p>Importance of communication</p> <p>Disturbing the social order</p>	<ul style="list-style-type: none"> ▪ Communication was the most prominent category for the ‘like most’ question in all three countries, but lowest in Japan. Communication was the most prominent category for ‘like least’ in Sweden and the US, but not in Japan. ▪ Americans were more likely than Swedes to judge mobile phones as disruptive of the social order, though Japanese were twice as concerned as Americans. ▪ Americans were twice as likely as Swedes to be bothered by other people speaking loudly, but Japanese were even more bothered than Americans.
Reachability (R4)	<ul style="list-style-type: none"> ▪ Comments on reachability accounted for 83%-88% of what Swedish and American subjects ‘liked most’ about their mobile phones, but only 65% of what Japanese ‘liked most’. ▪ Americans and Swedes had equal negative mentions of reachability (57%), while only 37% of what Japanese ‘liked least’ referred to reachability.

Figure 2 Summary of major findings

Building upon the summary in Figure 2, we focus the remainder of our discussion on three issues:

- a re-examination of public space usage in light of our earlier cultural characterizations
- the evolving status of mobile phone domestication in America
- the reachability conundrum

Public space

At the outset of this article, we suggested a cultural categorization of how Swedes, Americans, and Japanese use public space. Figure 3 integrates evidence from our mobile phone study into this earlier framework.

	Sweden		US		Japan	
Trait	Prediction	Mobile Evidence	Prediction	Mobile Evidence	Prediction	Mobile Evidence
Quiet in public space	yes	Moderate number of voice calls (BUT: judge others to speak more loudly on phone than F2F)	no	Largest number of high-volume voice calls Judge other people to speak more loudly on phone than F2F	yes	Smallest number of voice calls Don't speak more loudly on phone than F2F – and don't judge others to speak more loudly
Public space is for personal use	yes	Most talkers at cash register, walking, riding local transportation	yes	Talk while walking, riding local transportation (BUT: not at cash register)	no	Fewest talkers while walking, riding local transportation (BUT: talk at cash register)
Tolerance of self-expression	yes	Most talkers at home dinner, in café Least bothered when others speak loudly or discuss personal affairs	yes	Text at home dinner (BUT: don't talk at home dinner) Some talk, much texting at café BUT: bothered when others speak loudly or discuss personal affairs; judged mobile phone to disrupt social order	no	Fewest talkers or texters in café (BUT: some talking and texting at home dinner) Bothered when others speak loudly or use mobile phone to disrupt the social order

Figure 3 Summary of findings regarding use of mobile phones in public space

Overall, the mobile phone data are largely consistent with the cultural profile we initially suggested for Sweden, the US, and Japan. However, the apparent exceptions bear further comment. In Sweden, for example, subjects judged others to speak more loudly on mobile phones than face-to-face. In fact, half the Swedish participants voiced this sentiment – roughly

the same proportion as American subjects. However, as noted earlier, the problem in evaluating this finding is that we have no empirical baseline for face-to-face volume levels in either country.

Additional support for our Swedish findings comes from other studies of Swedish mobile phone behavior. In 2004 ('Swedes Like to Talk While They Eat'), TeliaSonera reported that 24.6% of Swedish respondents (age not specified) judged it was always acceptable to talk on their mobile phones during a family dinner. In another study ('OK to Talk on Your Mobile Phone While Shopping', 2004), TeliaSonera found that 81.6% of Swedes (again, age not specified) felt it was always acceptable to talk on their mobile phone in a shop. More recently, Tele2 reported that less than 3% of Swedes (age not specified) reported they would prefer public transport to be mobile-phone-free zones. The vast majority of Swedes (89%) found it appropriate to talk on a mobile in a restaurant. And only 19% minded hearing about other people's problems in their private relations (Tele2, 2008).¹¹

The American data were also generally consistent with our profile, except with regard to being bothered by the use of mobile phones by others in public space. Americans complained about other people speaking loudly, discussing personal affairs, or more generally disrupting the social order. As we suggested earlier, Americans (perhaps like people in many cultures) sometimes espouse values (here, freedom of speech) that they do not consistently condone in the behavior of others.

Finally, the Japanese data also generally follow our initial profile. Two unexpected findings were the amount of talking when paying at a cash register and amount of both texting and talking when eating dinner at home. An understanding of these results will need to be embedded within a more fine-grained analysis of contemporary Japanese culture.

Americans and domestication of mobile phones

The American data (collected between January and March 2008) are of particular interest because they reflect a technology still being domesticated. In a study conducted in 2005, American university students were asked to weigh the amount of talking versus texting they did on mobile phones. Subjects reported engaging in 7 voice calls for every 3 text messages. Moreover, the average number of text messages they sent per day was between 3 and 6, depending upon the subject population (Baron, 2008: 143). Since 2005, use of text messaging in the US has been skyrocketing. In September 2008, Nielsen Mobile reported that Americans were sending (or receiving) more text messages than they were making (or receiving) voice calls on mobile phones. For the age cohort 18-24, there was a monthly average of 265 calls to 790 texts ('More SMS than CALLS', 2008).

As part of the domestication process, Americans may be getting quieter when they speak on mobile phones in public space. Perhaps Americans simply need to believe that their voice will transmit without needing to raise their volume. (A century ago, George Bernard Shaw complained about the 'stentorian efficiency' with which the first London telephones broadcast private messages – Briggs, 1977:61.) To discern whether our findings reflect the domestication process – or a conflicted attitude towards free speech – we may need to wait several years until Americans are as comfortable with mobile phones as counterparts in Europe or Asia.

Reachability as a growing conundrum

Our data suggest that Swedish, American, and Japanese university students in our sample largely thought of their mobile phones as communication devices. For the 'like most' question, between

47% and 82% of responses referred to communication. And for the reachability re-analysis of the 'like most' data, between 65% and 88% of responses involved reachability.

Yet when asked what they 'liked least' about their mobile phones, between 37% and 57% spoke of reachability. Discomfort with always being reachable is hardly unique to subjects in this study. In addition to a growing litany of anecdotal complaints, the Pew Internet & American Life Project reported in September 2008 that 49% of working Americans judged that 'ICTs make it harder for them to disconnect from their work when they are at home and on weekends' (Madden and Jones, 2008).

Besides the reachability conundrum itself, there is the additional question of whether conflicting feelings regarding reachability span across cultures. Our data suggest that while Swedish subjects displayed greater enthusiasm for reachability than American, both groups were equally negative about being reachable by others. Japanese subjects were least effusive about reachability, but also least bothered by it. In their theory of Apparatchgeist, Katz and Aakhus (2002) suggest that the logic informing personal communication technologies is that of perpetual contact. Our study indicates that while the logic of mobile phones drives users to seek communication with others, users are uncomfortable about always being reachable. However, the conundrum seems strongest for the two Western countries compared with Japan, where, perhaps, social politeness conventions mitigate against individuals complaining about others attempting to communicate with them.

It is instructive to compare our current findings with results from a recent Eurobarometer study, charting attitudes towards mobile phones among citizens from 27 EU countries (Eurobarometer Flash Report 241, 2008). When asked to judge the statement 'People who do not use a mobile phone have less stress in their lives', 52% either 'strongly' agreed or 'rather' agreed.

Among Swedes, the percent of respondents offering one of these two responses was 68% (pp. 64, 67).

CONCLUDING REMARKS

The data presented in this article lend substantial support for correlating cultural variables with mobile phone practices. Admittedly, our data are limited (a convenience sample from a restricted age group and educational cohort in three countries), and our cultural analysis has not been methodologically detailed. However, by using a uniform research tool (the same online questionnaire, though translated), we were able to tap into subtle attitudinal issues, enabling us to probe more deeply than some of the other ICT cross-cultural analyses available.

Our study revealed several dimensions of mobile phone use by university-aged students that held constant across cultural contexts. The first was how strongly subjects thought about their mobile phones as essentially communication devices. While mentioning other multipurpose functions (such as a radio, an organizer, or a tool for accessing the internet), communication still predominated, especially in Sweden and the US. In the coming years, it will be interesting to see how this balance plays out, particularly with the proliferation of internet-friendly smart phones.

Secondly, our study documented a clear conflict between the desire to be in communication with others – and the desire not to be reached. As ICTs increasingly lead us to being ‘always on’,¹² it will be important to understand whether the proliferation of mobile phones is magnifying a social conundrum already in place or generating a new kind of social pressure. Research will obviously need to include voice calls and texting via mobile devices but also internet-based communication functions such as instant messaging, blogs, and social networking sites that have traditionally operated on computers.

Future cross-cultural research efforts might involve a broader cultural sampling (including, for example, Africa and the Middle East), more age groups, and more varied educational backgrounds, along with a fine-grained analysis of the role of cost in determining mobile phone usage patterns and attitudes. Random (rather than convenience) sampling will make for more robust data, as will independent cultural analyses of the sort we were not able to undertake here.

Undoubtedly, mobile phone practices will continue to evolve. It remains to be seen whether, with time, cultural differences will diminish or persist. The more closely we chart the individual and collective trajectories of mobile phones in diverse cultural settings, the better prepared we become both to design phones that fill our needs and to cope with unanticipated consequences of mobile telephony.

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Notes

- 1 While mindful of pitfalls in equating culture with nation-state (Baron, 2009), we here use the terms ‘nation’ (or ‘country’) and ‘culture’ interchangeably. Our research included only university students aged 18-24, themselves a subset of national populations, and loosely sharing some cultural affinities.
- 2 For more on Japanese behavioral patterns, see Doi, 1971, Lebra, 1976; and Yamada, 1997. For analysis of Japanese mobile phone (*keitai*) behavior and its cultural underpinnings, see Ito, Okabe and Matsuda, 2005. Also see Ohmori and Haruta, 2008.
- 3 Henceforth, when we speak of ‘Swedes’, ‘Americans’ and ‘Japanese’, we are referring to study participants residing in those countries, not to citizenship or to the entire country’s population.
- 4 As part of the larger research project, data were also collected in Italy and Korea.
- 5 Due to space limitations, gender analyses are not reported here. As for age discrepancies between samples, it was difficult finding younger subjects in Sweden, since Swedes tend to begin university studies at an older age than Americans or Japanese.

- 6 Because of translation problems in the Japanese survey, we have excluded data from additional questions regarding ‘sitting with people you know in a formal restaurant’ and ‘riding a [long-distance] train’.
- 7 We are grateful to Misa Matsuda and Kumi Iwasaki for discussion of these issues.
- 8 ConAgra estimates that 40% of American families eat together only three or four times a week (http://findarticles.com/p/articles/mi_m4PRN/is_2003_May_30/ai_n27743326).
- 9 On longer-distance Japanese trains, riders may speak on their mobile phones in the space between train cars.
- 10 Invalid and uncodable responses were eliminated, therefore slightly reducing the sample size in the US and Japan.
- 11 Additional confirmations appear in the ongoing Swedish Mobile Barometer project – see Axelsson (2009).
- 12 For broader discussion of the ramifications of being ‘always on’, see Baron (2008).

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