

THREE WORDS ABOUT MOBILE PHONES: FINDINGS FROM SWEDEN, THE US, ITALY, JAPAN, AND KOREA

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Three words about mobile phones: findings from Sweden, the US, Italy, Japan, and Korea

While roughly half of the world's population has access to mobile phones, people in different cultural contexts sometimes use – or view – their phones in divergent ways. A growing variety of country-specific studies have emerged over the past decade, though the number of cross-cultural studies has been smaller, especially with respect to identical survey instruments being applied in multiple contexts.

This paper draws upon data from the American University Cross-Cultural Mobile Phone Project to assess how e-actors feel about mobile phones. The study surveyed university students in Sweden, the US, Italy, Japan, and Korea, between the ages of 18 and 24. One of our open-ended questions asked: “What are the first three (3) words you think of when you think of mobile phones?” Responses were coded into seven major categories: Technology Issues, Physical Attributes and Functions of Phone, Communication, Evaluative Issues, Cost Issues, Safety Issues, and Advertising, along with many subcategories. Respondents predominantly identified their mobiles with communication functions. However, differential national contexts were reflected in many of the response patterns. We discuss possible explanations for these differences.

Keywords

culture, Italy, Japan, Korea, mobile phones, Sweden, United States, word association

1 INTRODUCTION

Ask an elderly African-American about the significance of electing Barack Obama president of the United States, and you will likely encounter reference to Obama's race. Ask a white liberal from San Francisco, and you will probably hear about rejecting the former American president's foreign and domestic policies. Same election; different perceptions.

Despite some variation in technology and service options, mobile phones are becoming increasingly similar in countries around the world. Yet this similarity does not necessarily imply that members of various cultural groups make use of – and perceive – mobiles in the same way. There is a growing literature exploring how information and communication technologies (ICTs) in general and mobile phones in particular are employed in different national and cultural contexts (e.g., in Israel, Jamaica, Japan, the Nordic countries, the Philippines). [4, 14, 16, 17, 24]. The number of comparative studies is growing as well. [3, 8, 9, 11, 12, 13, 18].

Cross-cultural studies are, of course, fraught with challenges, as Sonia Livingstone, Leslie Haddon, and others have pointed out. [20, 25]. It is important, for example, to be aware that factors other than culture (e.g., cost, length of time a technology has been available) may account for differences observed between nation-states. Similarly, we need to be sensitive to the possibility that the same word in one culture may have different connotations or applications in another. In my own research, for example, I discovered that the word *information* used by an American in talking about a mobile phone referred to sharing information with a friend or colleague, while in Korea and Japan, the word referred to accessing information from the mobile internet. Without knowing the extent to which the mobile internet is used in a particular country, it is difficult to interpret what appears on the surface to be the “same” answer.

1.1 Selecting countries and target population

Ideally, a cross-cultural study of mobile phones identifies a broad spectrum of nations and populations within them from which to gather data. Practically, however, the scope of a research project reflects both resources and pragmatic options. Moreover, because mobile phone technology and usage patterns evolve quickly, it is important that comparative data be collected within a reasonably constrained time span.

The present study (the American University Cross-Cultural Mobile Phone Project) focused on university students in five countries: Sweden, the US, Italy, Japan, and Korea. The data collection period spanned from October 2007 through December 2008, with responses gathered in each country over a six to eight week period. University students were selected for several reasons. Practically, they were an accessible population for the author to reach: They could be recruited through convenient university channels (e.g., flyers, advertisement in student newspapers and electronic message boards, identification by faculty) and did not require parental permission in order to participate. More importantly, they represent a population who are typically experienced mobile phone users and have clear opinions about how the instrument functions in their lives. As many researchers have argued, the mobile phone culture tends to “live” among teenagers and young adults. [19].

The selection of countries reflects three variables: an attempt to look at countries with diverse ICT experience (particularly the balance between personal computers and mobile phones), an interest in countries known for being on the leading edge of mobile phone technology (and functionality), and availability of research sites in which the author could gather data.

- **Sweden** has a history of early adoption and high penetration of both mobile phones and personal computers. As of 2007, there were 113.7 mobile phone subscriptions per 100 inhabitants (ITU), and in 2006, there were 83.6 personal computers per 100 inhabitants (Economist.com). In 2007, there were 80.0 PC internet users per 100 inhabitants (ITC). Sweden is also the home of Ericsson, one of the early major mobile phone manufacturers. [7, 15].
- While the **US** is the birthplace of personal computers, mobile phones as everyday devices are a newer technology. In 2007, there were 83.5 mobile phone subscriptions per 100 inhabitants, though in 2000, there were only 38.5 (compared with 71.8 in Sweden) (ITU). Moreover, while text messaging has recently become extremely popular in the US, voice calls were previously the main function on American mobiles. [21, 2]. Personal computer ownership in the US is substantial – 76.2 PCs per 100 inhabitants in 2006 (Economist.com), as is PC internet access: in 2007, 72.5 people per 100 inhabitants (ITC). [7, 15].
- **Italy** exemplifies a country with high mobile phone use but comparatively later (and lower) experience with personal computers. As of 2007, there were 153.1 mobile phone subscriptions per 100 people – the highest of all five countries studied. Even in 2000, the figure was 73.2 (ITU). By comparison, in 2000, the number of PCs per 100 people was only 18.0 (UN Data), and by 2006, had only risen to 36.7 (Economist.com). Not surprisingly, PC internet access has remained comparatively low: 22.9 users per 100 inhabitants in 2000 and 54.4 in 2007 (ITC) – the lowest of all five countries. [7, 15, 26].
- **Japan**, like, Italy, has more extensive experience with mobile phones (*keitai*) than with personal computers. In 2000, there were 52.6 mobile phone subscriptions per 100 inhabitants, but only 31.5 personal computers per 100 people (Economist.com) and 29.9 internet users (ITC). In 2007, there were 83.9 mobile subscriptions and 68.9 internet users per 100 people. However, unlike Italy, Japan has a reputation not only as a technological innovator but as a country enamoured with gadgets – including mobile phones. [7, 15].
- **Korea**, like Japan, is a technological innovator. As in Japan, mobile phone functions (e.g., convenient access to the internet, availability of television broadcasting) have generally outpaced services in Europe and the US. As of 2007, Koreans had 90.2 mobile phone subscriptions per 100 inhabitants (ITC), slightly outpacing Japan and the US. However, the number of PCs per 100 inhabitants in 2006 was only 53.2 (UN Data), behind all countries but Italy. PC internet access was higher: 76.3 people per 100 inhabitants as of 2007 (ICU). [15, 26].

There are also cultural differences across these five countries that helped motivate the choice of research sites. For example, attitudes regarding appropriate mobile phone use in public space differ widely in Sweden and Japan, reflecting broader cultural behaviour patterns. While Swedes generally feel free to speak on their mobile phones while walking down the street or sitting in an informal cafe (following general patterns of public tolerance of individual actions), more constricted use of voice functions while walking in Japan (or especially while riding on a bus or subway) mirror social conventions restricting private expression that may disturb those around you.

Our ultimate goal is to analyze cross-cultural findings regarding mobile phones in light of what we know independently about cultural differences between the countries. A preliminary part of this analysis (especially regarding use of public space) has been done for data from Sweden, the US, and Japan. [1].

1.2 What to study: attitudes towards mobile phones

In studying mobile phone use, there is a spectrum of questions one might ask. We might measure usage (e.g., number of years owning a mobile phone; number of voice conversations or text messages per day). We might compare use of mobile phones with other ICTs (such as texting on mobiles versus instant messaging on computers, or use of mobiles versus landlines). And we might measure attitudes towards mobile phone use in a variety of contexts (e.g., use of mobiles in public space, reasons for texting versus talking).

Attitudes can be studied in multiple ways. One option is using a version of a Likert scale. A second is to ask open-ended questions such as “What do you like most/least about your mobile phone?” or “How has your mobile phone usage changed over the past three years?”

In the American University Cross-Cultural Mobile Phone Project, all these sorts of questions were asked. The present paper focuses on one open-ended question, involving a word association task.

2 RESEARCH QUESTIONS

2.1 “3 words”

What words do users associate with their mobile phones? Use of word association (also sometimes known as free association) tasks to tap into human thinking dates back to the early days of psychology at the end of the nineteenth century and has continued to be a common tool in attempting to assess how human cognition works or, more specifically, how language processing works. [5, 6, 10]. Generally, subjects are presented with lists of words and asked to associate another word with each item. Over the years, word association norms have been developed for a variety of languages. [22, 23].

The first research question in the present study was:

RQ1: What are the first three (3) words you think of when you think of mobile phones?

Previous research has explored the role of emotions involving the mobile phone. [26]. Emotionally-marked sentiments are, of course, possible responses to a question such as RQ1 (e.g., *cheerful*, *affection*, *stress*, *quarrels* – all of which were replies we received). However, RQ1 invites a much broader range of judgments, including responses alluding to social connectivity, concerns about radiation, or complaints about cost.

Our initial purpose was to gather empirical evidence on the word associations that university students from different countries offered regarding mobile phones. A subsequent goal was to explore correlations between these findings and what we know independently of cultural differences in the respective countries.

2.2 Talking versus texting

Mobile phones were originally created for conveying speech. Text messaging (initially known as Short Message Service, or SMS) was added, originally for free, by early members of Groupe Spécial Mobile (now, GSM). Because text messages were subsequently less expensive than voice calls in many parts of the world, those with limited finances (which typically included teenagers and young adults) tended to do more texting than talking.

Telecommunications companies now increasingly offer complex pricing plans rather than simple debits to a pre-paid SIM card (e.g., unlimited text messages; free voice calls between subscribers to the same telecommunications company). At the same time, there are sometimes non-fiscal considerations for deciding to text rather than talk (e.g., to “keep the message short”; because it is seen as rude to talk on a mobile while riding on a subway). In the larger study, we explored a range of motivations for choosing to talk or to text on a mobile.

Our question for this paper was more targeted: How much was talking or texting on one’s mind when thinking about a mobile phone? Using the data gathered for RQ1, we focused on just the first response from users:

RQ2: How often did the first word offered relate to talking or to text messaging?

We hypothesized that responses might reflect one or more variables, including the amount of talking or texting subjects actually did, comparative cost of texting versus talking, and/or cultural injunctions against using voice functions of mobiles in public space.

3 METHODOLOGY

3.1 General research design

Data were collected between Fall 2007 and Fall 2008 from 18-24 year-old university students in Sweden, the US, Italy, Japan, and Korea. 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, Italian, Japanese, and Korean.

The survey, which took about ten minutes to complete, was administered through a URL link to the professional version of SurveyMonkey, an online survey tool that can be implemented in a variety of languages and scripts. Focus groups were also conducted in all countries but Korea, though these findings are not analyzed here. The present study reports on a subset of the survey data from Sweden, the US, Italy, Japan, and Korea.

3.2 Subjects

A total of 2001 university students aged 18-24 from Sweden (N=171), the US (N=523), Italy (N=616), Japan (N=529), and Korea (N=162) completed the online questionnaire. Subjects were drawn from two different universities (in different cities) in each country. The subject pool was between 61% and 82% female.¹ Average age ranged from 19.8 years (in both the US and Japan) to between 21 and 22 in Sweden, Italy, and Korea.²

3.3 Survey question

The full survey (excluding demographic information) consisted of 54 quantitative (or scalar) questions and 6 open-ended questions. The word association question (“What are the first three (3) words you think of when you think of mobile phones?”) appeared at the beginning of the survey, just following demographic information. Responses were translated into English by fluent bilinguals (of Swedish, Italian, Japanese, and Korean, respectively) and then hand-coded, using scoring matrices that encompassed data from all five countries.

To help interpret results from the “3 words” word association question, findings will be compared with results from several other questions in the survey.

4 RESULTS

4.1 RQ1: “3 words”

Figure 1 presents the major components of the coding scheme created to classify responses:

Major category	Sample subcategories and examples
Technology issues	named telecommunications carrier (e.g., <i>Sprint, Telia</i>), miscellaneous telecommunications words (e.g., <i>carrier, subscription</i>)
Physical attributes/functions	names for handset (e.g., <i>cell phone, telephone</i>), physical phone components (e.g., <i>battery, keypad</i>), size (e.g., <i>bulky, slim</i>), phone number (e.g., <i>address book</i>), ancillary functions (e.g., <i>clock, games, internet, organizer, vibrate</i>)
Communication	contact (e.g., <i>in touch, reachable</i>), spoken language (e.g., <i>chat, call</i>), social community (e.g., <i>boyfriend, family</i>), etiquette (e.g., <i>manners, priority seat</i>), bridge distance (e.g., <i>far away friends, to travel</i>), emotions (e.g., <i>affection, quarrels</i>)

¹ Because of space constraints, gender differences will not be discussed here.

² Age proved to be a challenging variable for the project. It was difficult finding younger subjects in Sweden, since Swedes tend to begin university studies at an older age than Americans, Japanese, or Koreans. The Korean ages reported by subjects were all reduced by one year, since the Korean system of calculating age calls everyone one year old at birth, and then adds one year as of January 1, regardless of the day and month on which a person is born.

Evaluation	
POSITIVE EVALUATION	mobility (e.g., <i>car, portability</i>), speed (e.g., <i>fast, quick contact</i>), planning (<i>making plans</i>), overall positive judgment (e.g., <i>best friend, good to have</i>), independence (e.g., <i>autonomy</i>)
NEGATIVE EVALUATION	addiction/dependency (e.g., <i>addictive, slavery</i>), disruption (e.g., <i>interruption, intrusive</i>), stress/anxiety (e.g., <i>angst, stress</i>), evil/crime/danger (e.g., <i>crime via internet, hazardous site</i>), bad manners (e.g., <i>breach of manners, nuisance on a train</i>), equipment/transmission problems (e.g., <i>dead battery, lost, static</i>)
Cost issues	value-neutral (e.g., <i>bill, SIM card</i>), expensive (e.g., <i>costly, ripoff</i>)
Safety issues	general (<i>safe, security</i>), emergencies (e.g., <i>emergency situation</i>), radiation-related concerns (e.g., <i>brain tumor</i>)
Advertising	e.g., commercial, advertisement on SMS

Figure 1: Categories for analyzing “3 words” free responses

Table 1 reports the overall distribution of free responses, by country and by major category:

	Sweden	US	Italy	Japan	Korea
Technology issues	5.7%	7.9%	2.9%	4.4%	5.1%
Physical attributes/functions	21.5%	18.3%	17.0%	25.6%	27.8%
Communication	48.0%	41.6%	52.3%	42.4%	49.2%
Positive evaluation	10.3%	18.2%	14.7%	18.1%	11.3%
Negative evaluation	4.3%	7.8%	4.2%	6.6%	2.1%
Cost issues	4.9%	3.7%	6.9%	1.7%	1.9%
Safety issues	5.1%	2.5%	2.1%	1.0%	0.6%
Advertising	0.0%	0.0%	0.0%	0.3%	2.1%

NOTE: Because of rounding, not all columns sum to 100%.

Table 1 Comparison of free responses to “3 words” question

Communication was, by far, the dominant category in the word association task responses. Between 41.6% and 52.3% of the responses from all five countries involved communication. Overall, Americans and Japanese were the most evaluative – both positively and negatively – while Italians were the most likely to mention cost. Responses involving safety issues were highest among Swedes.

When the data are broken down into subcategories, further interesting patterns emerge. Under “Physical attributes/functions”, we separated out “Ancillary functions”, which included, for example, graphic images (including photos), ring tones, time functions, entertainment, and functions involving connection to the internet (such as net surfing, social networking, or bus time tables). We also looked at just internet-based functionality. Table 2 summarizes these results:

	Sweden	US	Italy	Japan	Korea
Ancillary functions (total)	6.9%	7.0%	8.3 %	14.3%	19.3%
Internet-based functions	<0.1%	<0.1%	<0.1%	7.3%	2.9%

Table 2 Comparison of “Ancillary functions” responses

Japanese and Koreans mentioned ancillary functions twice as often as their western counterparts. However, it was the Japanese who most frequently identified internet-based functions. Korean responses commonly used words relating to graphic images, ring tones, and entertainment. Swedes, Americans, and Italians tended to mention graphics and ring tones, while Americans were the only ones to refer to voice mail (1% of all US responses).

Regarding other interesting subcategories:

- With one exception, only Japanese subjects mentioned manners – both general etiquette issues (e.g., *manners, please turn off your keitai around priority seats*) and bad manners (e.g., *breach of manners*).
- Japanese subjects were the only ones commenting on the “dark side” of mobile phones (Evil/crime/danger). Responses included *crime* and *kids accessing pornography sites*.
- Italians expressed most concern about the cost of using mobile phones.
- While Swedes appeared particularly concerned about safety, analysis by subcategory revealed their biggest concern was health-related dangers from radiation. Americans, by contrast, most often mentioned the positive benefits of mobiles in times of emergency.

4.2 RQ2: talking versus texting

Table 3 summarizes the percent of first-word responses that involved talking or texting. Note that both of these terms are subcategories of the broader “Communication” category:

	Sweden	US	Italy	Japan	Korea
Talking	20.0%	17.1%	5.2%	2.8%	13.0%
Texting	22.4%	16.5%	41.2%	51.6%	53.7%

Table 3 Percent of first-word responses involving talking or texting

While Swedes and Americans offered fairly balanced profiles for mentioning talking or texting, the proportions in Italy, Japan, and Korea were asymmetric: Koreans mentioned texting four times as much as talking, while Italians mentioned texting eight times as often. The asymmetry was greatest in Japan, where texting was mentioned more than 18 times as often as talking.

These results can be compared with responses to a question from the broader survey regarding volume of voice calls (made and received) and text messages (made and received) the previous day. Table 4 reports these results:

		0-4	5-10	≥ 11	(≥ 30)
Sweden	voice	62.0%	31.6%	6.4%	(0.0%)
	text	56.1%	31.0%	12.8%*	(1.2%)
US	voice	48.6%	38.4%	13.0%	(1.2%)
	text	40.3%	26.8%	32.9%	(11.3%)
Italy	voice	78.7%	19.0%	2.3%	(0.2%)
	text	33.3%	26.6%	40.1%	(16.9%)
Japan	voice	85.4%	12.7%	1.9%	(0.6%)
	text	18.3%	29.5%	52.1%*	(16.1%)
Korea	voice	48.1%	34.6%	17.3%	(1.9%)
	text	3.7%	15.4%	80.9%	(43.8%)

NOTE: Because of rounding, not all rows sum to 100%. The last column (≥ 30) is not included in the summation.

Table 4 Mean number of voice calls (made or received) and text messages (sent or received) previous day

There are a number of close parallels between the first-word responses involving talking or texting, and the amount of talking or texting subjects reported doing. Americans and Koreans both made reasonably frequent first-mention of talking (US: 17.1%; Korea: 13.0%), and subjects from both countries reported reasonably high volumes of talking. Among Americans, 13% reported making or receiving 11 or more calls the previous day, while 17.3% of Koreans made or received 11 or more calls. Among Swedes, the comparative numbers were more anomalous. Fully 20% of Swedes mentioned talking as their first-word response, though only 6.4% made or received 11 or more voice calls a day. Compared with Americans, Swedes made first-mention of talking a bit more often (Swedes: 20.0%; US: 17.1%), but were only half as likely to be heavy (≥ 11 calls) talkers (Swedes: 6.4%; US: 13.9%) and more likely to make or receive minimal (0-4) voice calls (Swedes: 62.0%; US: 48.6%).

Koreans were the most likely both to mention texting (53.7%) and to be heavy users of texting (80.9% sent or received 11 or more texts the previous day, and 43.8% sent or received 30 or more texts daily). Both Italians and Japanese commonly mentioned texting (Italy: 41.2%; Japan: 51.6%), and both reported frequent use of texting. Among Italians, 40.1% reported sending or receiving at least 11 texts a day, with 16.9% sending or receiving 30 or more. Similarly, 52.1% of Japanese sent or received 11 or more texts, while 16.1% used 30 or more.

5 DISCUSSION AND CONCLUDING REMARKS

5.1 “3 words”

RQ1 asked, What are the first three words you think of when you think of mobile phones? It is commonly suggested today that “mobile phones” should be called “mobile devices”, since they are increasingly capable of filling many functions besides communicating with one another. We saw in Table 1 that nearly half of all free associations – across countries – involved a **communication function**. Though the percentages differed across countries, between 23.7% (US) and 39.7% (Korea) of all three word associations specifically involved talking or texting. The importance of communication is reinforced by data not presented here on what subjects liked most about their mobile phones. Although only data for Sweden and the US have been analyzed thus far, 89.5% of Swedes and 83.7% of Americans reported that what they liked most about their mobile was reachability – being able to reach others and for others to reach them.

Compared with communication functions, the number of subjects mentioning **ancillary functions** (e.g., graphic images, internet access) was lower, with Sweden, the US, and Italy on the low end (approximately 7% - 9% of first-word responses) and Japan and Korea on the high end (roughly 14% to 19%). Further analysis of the category suggested how much countries differ in the extent to which they think of their phones as devices for connecting to the larger world, i.e., via the internet. In Japan, 7.3% of all responses to the “3 words” question involved internet-based functions, compared with less than 0.1% in Sweden, the US, and Italy. The prominence of mobile internet functions in Japan is not surprising, given the development of i-mode by NTT DoCoMo in 1999, and the fact that post-paid mobile phone subscription in Japan typically contain not just a monthly allocation of talk minutes and *keitai* mail (i.e., texting) packets, but also an allocation for internet use. In Sweden and Italy, mobile internet use has remained expensive (and the exception) for most younger phone users. In the US, unlimited mobile internet access (for a monthly fee) is relatively new, and its widespread proliferation postdates collection of the American corpus in early 2008.

The **evaluative data** offer potential insights into how attitudes towards mobile phones might reflect cultural distinctions. Americans and Japanese were equally likely to offer positive evaluations in their word associations (about 18% of all responses). They also offered fairly similar rates of negative judgments (US: 7.8%; Japan: 6.6%). However, when we look at subcategories, interesting patterns emerge. For positive evaluations, both Americans and Japanese most often talked about how convenient, easy, or handy mobile phones were. For negative evaluations, the category most cited by Americans was that mobiles were annoying or bothersome, followed by complaints that mobiles were loud or noisy. Among Japanese, complaints were more diffuse, though the highest subcategory was addiction or dependency. Given the high volume of texting done in Japan, this result is not surprising. While Koreans had an overall low level of negative evaluations (2.1%), the highest number of complaints was also about addiction or dependency – again, not surprising, given their high level of texting.

Negative evaluations in Japan were also interesting for cultural reasons. Japanese were the only subjects to complain about the bad manners of others (e.g., in using *keitai* on a subway) and about the social harm that *keitai* can cause (e.g., making pornography available to children or facilitating criminal activity). Regarding manners, Japanese society is generally more conscious of public behavioural norms than any of the other four countries.

Of course, Japan (like most countries) is not socially homogenous. The Japanese often distinguish between the comparatively relaxed style of people from the Kanto region (which includes Kyoto and Osaka) and the more formal behaviour of people from Kansai (which includes Tokyo). Subjects for this study were drawn both from Ritsumeikan University (in Kyoto) and International Christian University (in Tokyo). While only 4.6% of the Ritsumeikan subjects had negative evaluative judgments, 9.4% of the ICU students offered such words, including higher response levels relating to bad manners. While the numbers are small, this within-country cultural disparity bears further examination.

Cost is another interesting category. Italians were the most likely to mention cost in their word associations (6.9%), while very few Japanese or Koreans spoke of cost (Japan: 1.7%; Korea: 1.9%). Data from the larger study may help explain this disparity. In Italy, 49% of subjects paid all costs of their mobile phones themselves (while most of the rest either split the costs with their parents or had their parents paying their bill). By comparison, only 15.3% of Japanese subjects paid their entire bill themselves, with the vast majority (72.6%) having their bill paid by their parents. In Korea, 14.8% paid their entire bill themselves, while 69.7% had their parents paying the entire bill. Thus, perception of costs may reflect who is paying them.

5.2 Talking versus texting

The amount that users choose to talk or text on mobile phones may reflect a variety of variables: What does it cost to use a particular function on a phone? How long has the technology for that function been available? Is there a novelty effect at work, which may fade over time? And finally, where are cultural factors most likely to be the source of differences in national patterns?

Actual **cost** of mobile phone use can be difficult to assess. In focus groups conducted in Sweden, the US, Italy, and Japan, I attempted to ascertain approximate monthly phone charges, but was never able to do so successfully. Sometimes the problem was that parents paid the bill, but more often, I heard how difficult it is to calculate cost: Is there a special promotion on texting this month from the telecommunications carrier? Do you have a separate handset (and SIM card) for texting than you do for talking – which every student in the Italian focus groups had – to take advantage of differential pricing plans? How do you estimate the “free” calls you make when speaking with someone using your same telecommunications carrier but the “pay” calls to people using different systems? There was also no obvious way of comparing whether the same price structure that seemed reasonable to one group of subjects might seem overly expensive to another. Moreover, traditionally, pricing approaches to texting versus talking have been different in the US than in most of the world. Until recently, all American mobile phone plans were post-paid and included only a monthly allocation of talk minutes.

Availability of a technology naturally shapes its importance to users. (To wit: While Japanese and Koreans mentioned television as an ancillary function, subjects from the three western countries did not, presumably since their phones lacked this function.) Text messaging (which is newer in the US than in the other four countries) was initially an expensive add-on, and priced by the message. More recently, American carriers have sold “buckets” of text messages – or unlimited text messages – for a set monthly fee. Predictability, Americans are now doing a lot of texting. In fact, the American data (collected between January and March 2008) revealed more heavy use of texting than heavy use of talking (texting: 32.9% of subjects reported sending or receiving 11 or more texts the previous day; talking: 13.0% reported making or receiving 11 or more voice calls).

By comparison, in a study conducted in 2005, American university students 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. [2]. Since that time, American text messaging has been exploding. In September 2008, Nielsen Mobile reported that Americans were, on the whole, 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. [21]. Daily, that translates into an average of 25.9 texts per day.

Clearly, statistics on text messaging are a temporally moving target. However, it remains to be seen how much **novelty** is driving current usage. The Nielsen Mobile study reported that among 13-17 year-olds, average monthly texting reached 1,742 per month. It seems unlikely that such levels will be maintained as users become older – or simply bored with texting.

Once we eliminate alternative explanations for national differences in the use of texting versus talking, we need to focus on potential **cultural factors**. In discussing general distribution of word associations, we alluded to Japanese concerns over social etiquette as underlying some of their negative evaluative terms. There are also probably cultural roots behind the patterns of talking versus texting. Swedes had the lowest overall use of both voice and texting functions, probably reflecting a lower level of face-to-face social exchange than found in such countries as the US or Italy. In Japan, there is clear evidence of social pressure not to speak on mobile phones in public space, hence explaining why the Japanese spoke the least and referred to talking least often as the first word in the word association question. [1]. While Italians also did little talking on mobiles (and had a low percent of first-word responses involving talk), the motivation was likely financial considerations rather than cultural strictures against talking in public space.

5.3 Concluding remarks

Beyond the national differences we have reported, several lessons emerge regarding the challenges of doing empirical research on ICTs, along with particular cross-cultural challenges. Key issues include:

- Always be aware of the date when data are collected. ICT usage can shift quickly.
- Be sensitive to what else might be going on in a country around the time data are collected (e.g., perhaps a report in Sweden on the dangers of radiation from mobile phones or a report on crime in Japan).
- Be on the alert for words not having the same connotation in different cultural contexts (e.g., when alluding to mobile phones, *information* refers to a communicative function in the US but an internet function in Japan).
- Consider other factors (e.g., cost, availability of technology, novelty) before concluding that culture is the source of difference between two national patterns.

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