

Perceptions of the mobile device as a news medium from a cross-cultural perspective

Oscar Westlund¹

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¹ Department for Journalism and Mass Communication
University of Gothenburg, Sweden
oscar.westlund@jmg.gu.se

Abstract

In recent years the mobile phone has evolved from essentially an interpersonal communication device to a multimedia machine providing always-on internet connection. However, actual use of mobile internet, including functions such as news services, has been slow in most countries. There is little research on the role of mobiles as multimedia devices, especially with respect to accessing the news. This article focuses on questions related to usability and cost for using the mobile as a news medium, drawing upon cross-cultural data gathered in Sweden and Japan during Fall 2007. Although Japan and Sweden have superficially equivalent news media systems, the Japanese more favourably perceive the usefulness of accessing news on the mobile than do Swedes. Furthermore, the Japanese find mobile news as more expensive, and are less willing to pay for it. In reporting on this study, the article illustrates some of the methodological challenges in doing cross-cultural comparisons.

Key words

Convergence, cross-cultural, Japan, media, mobile, multimedia, news usage, Sweden.

The interaction between technology and culture affects the adoption and use of information communication technologies (ICTs). There are traditionally different views on the relative importance of these forces, from technological determinism to social constructivism. Katz and Aakhus (2002) argue that technology serves as a constraint upon possibilities, while it does not determine what people actually will use technology for. Schroeder discusses how the diffusion of cars, telephones, and television has changed the lifestyles and cultures among people across the world (2007). Although it is beyond the scope of this article to determine which forces play the most important role here, it is important to stress that technology and culture are co-present in technological development. There are a number of ICTs that have had a profound impact on cultures and lifestyles in the past, and will have an increasingly important impact in the future. What are commonly referred to as mobile phones clearly represent such an ICT, and will therefore be closely examined in this article.

The convergence of mobile phones and multimedia has altered the technological landscape, introducing a wide array of new usage areas such that the mobile is no longer only a phone. Rather, it has become a personal mobile device that, at least in principle, integrates both communication and multimedia functionality. This article will use the term “mobile device” (rather than “mobile phone”) to emphasize that the mobile has developed into a device that integrates multimedia functions. Multimedia functionality means that the mobile device can handle audio, video, graphics, text, and animation in an interactive manner. The diffusion of handsets capable of functioning as mobile multimedia devices is constantly increasing among western countries. This diffusion is a consequence of the improved technological architecture of mobile devices and the pace of replacements.

To date, mobile devices are still predominantly used as interpersonal communication devices, enabling the sharing of information and the coordination of everyday life activities with family, friends, and colleagues (Bolin 2008; Bolin & Westlund 2009; Ling 2004; Westlund 2007a). Katz and Aakhus (2002) concluded that mobiles are used as interpersonal communication devices in a similar way in the US, Korea, and several European countries. They argue that there is a universal drive towards perpetual contact; that people from different cultures share a spirit that guide their interest in adoption and use of mobiles. At the same time, however, the literature offers reports on cultural differences (e.g., Campbell 2007; Oksman and Rautiainen 2003)

Is there such a 'spirit' guiding interest in using the mobile as a multimediuM? In recent years, many of the functions previously available via other information and communication technologies are being made available on mobile devices as well (for example, camera, video, radio, TV, GPS, mp3, and the internet). Since the 1990s, there has been an emergence of internet-functionality for mobiles that was initially enabled through the wireless application protocol (WAP), which basically functioned as a modem. Mobile devices, protocols, and networks for accessing the internet have continuously improved, enabling faster transfer rates and more user-friendly experiences. One important development has been the use of general packet radio services (GPRS), which means that data are transferred as packages. The main advantage of this system is that users can have continuous access to the internet while only paying for the data actually used, rather than needing to have a modem line always connected. Japanese telecom operator NTT DoCoMo started to use such packet-switching technology with its iMode concept in 1999, while the technology was not used in Sweden until 2002. The "i" of iMode refers to 'internet', information and 'I' (myself).

The payment models for mobile internet vary between operators and countries. One common model is to pay a certain amount per MB of data, while another model uses a monthly flat rate for a set amount of usage (a model common in Japan). A global study shows that the number of mobile subscribers who had tried to use their device for accessing the Internet was 28 percent in 2005 (Church, Smyth, Cotter and Bradley 2007). To date, actual use of mobile internet has been rather limited in most countries, though it has a higher uptake level in Asian countries such as Japan and South Korea than, for example, in Europe (World Association of Newspapers 2007). In an extensive evaluation of the mobile content ecology, a group of researchers have analyzed results from several empirical accounts on the adoption and non-adoption of mobile services. They conclude that there is a large gap between the number of people who possess mobile phones, and the number who have adopted advanced mobile services such as internet browsing (Feijóo et al, 2009). A more recent empirical analysis, based on actual traffic among subscribers to telecom operator Telenor in Norway, confirms these conclusions. Ling & Roe discuss that about 90% of the events in the network of the Norwegian telecom operator Telenor are either calls or text messages, while internet traffic accounts for only about 5% (2009).

There are a variety of internet functions one can access with mobile device nowadays, including search engines, social networking sites, email, and news. From a technological point of view, the mobile can be used as a news medium through radio, TV, texting, or mobile internet. In this article, reference to “mobile news” consumption includes news accessed through all these functionalities, unless otherwise specified. Wei. (2008) has concluded that instrumental motives constitutes the main driver for accessing news with mobile devices.

By one measure, mobile news access seems to be gaining a foothold when compared to other types of mobile commerce activities. In 2004, news and download services (for example. ring tones and images) were among the most frequently used services for mobile devices in countries such as Japan, Korea, Greece, Finland, and Sweden (ECOM, 2004). A longitudinal analysis of the years 2002 to 2006 from Finland confirms this prominent role of news in comparison to other advanced mobile services (Bouwman et.al, 2008). A report on Sweden in 2007 suggests that browsing news is the most common activity among Swedish users of mobile internet, followed by activities such as information search and email (Bohlin and Westlund, 2008).

This article explores cross-cultural perceptions related to the mobile as a multimediuum, but particularly as a mobile news medium. This focus on attitudes towards the mobile device as a news medium is timely, since mobiles represent a convergent new media technology that is acquiring a growing importance as a personal multimediuum. Mobile access to news is but the latest in a succession of conveyance media, including hard-copy newspapers, radio, television, and online news viewed on a computer screen.

The article aims to help establish groundwork for future research and theory-building. We examine 2007 survey data from Sweden and Japan, looking at different gender and age cohorts. These two nations form two specific case-studies that will be empirically examined one at the time since the methodological approaches were slightly different in respective survey project. A through discussion on methodology and potential consequences of the different approaches are elaborated on in the method section. Although cross-cultural comparisons are challenging it is clearly fruitful to attempt such analyses, therefore a section presenting comparisons and conclusions follows the two case-studies.

Even in a country such as Japan, in which use of the mobile internet is common, employing mobile devices to access the news remains on par with the limited uptake in Sweden. These two nations make for interesting case studies in that they are culturally different nations, though both are among the internationally-leading countries with respect to diffusion and use of ICTs such as mobiles, computers, and the internet. Furthermore, these nations are both newspaper-centric. It is, therefore, surprising to find such lack of enthusiasm for the mobile as a news medium. Cross-cultural comparisons of attitudes towards the mobile are naturally challenging, but the present contribution regarding use of news with mobiles may help advance our understanding of attitudes towards specific ICTs in diverse cultures.

CROSS-CULTURAL COMPARISONS OF ICTs: SWEDEN AND JAPAN

Haddon (2005:29) argue that culture can be understood as “a set of commonly shared symbols, values, beliefs, and attitudes, and their translation into everyday social perceptions, behaviour and material artefacts”. Previous research suggests that there are cross-cultural differences when it comes to use of ICTs. For example, Haddon (2005) proposes that social and temporal structures, values, and communication and material culture underlie such differences.

Cross-cultural comparisons in research have many advantages, but are also associated with multiple challenges. Livingstone (2003) has examined epistemological and practical issues related to cross-cultural research. She finds that it is common to seek out similarities and differences between cultures, and suggests that the issue of which countries to include in a comparison deserves more attention than it often receives. Livingstone further argues that ICT researchers who do not make cross-cultural comparisons should justify this choice, since there is a problem of generalizability of conclusions. Livingstone also reminds us of difficulties in treating nations as units, given that individual nations often encompass multiple cultures (Livingstone, 2003). In light of Livingstone’s arguments, it is fair to question whether Sweden and Japan (the loci of the present study) can be said represent just two cultures, since there are sub-cultures within each nation. The present study does, however, analyze national- data with respect to gender and age (which are, themselves, cultural issues).

Haddon (2005) observes that when comparing statistics from different nations, it is often difficult to determine the importance of cultural as opposed to economic, political and technological considerations. While culture may set a context that either favours or mitigates against ICT adoption or use, it is generally not possible to say that culture causes ICT uptake. To help resolve the question of directionality, empirical analyses (of the sort reported on in this paper) are essential.

Cross-cultural profiles

The work of Hofstede (1997), which was first published in 1991, is frequently cited in discussions of cross-cultural comparisons. Hofstede then proposed four cultural dimensions for comparing cultures, through the use of relative indexes. Although these indexes were initially applied to much earlier data from late eighties (and not involving ICTs), we here present Hofstede’s model as a means to interpret cross-cultural differences in using mobile devices for accessing news in Sweden and Japan.

Hofstede produced relative index rankings after obtaining comparable data about culturally-determined values from 50 countries. Hofstede surveyed employees within IBM in 1989, thus yielding a study of organizational cultures. Over time, results from this study have been applied to general cultural differences and similarities. The relative index values for each of the four cultural dimensions range from 0 (small) to 100 (large), based on a careful statistical analysis.ⁱ

The first index focuses on power–distance (PDI), which refers to how less powerful members accept the current power distribution within a culture. According to Hofstede, the power-distance was higher in Japan (54) than Sweden (31). This means that there are more hierarchies in Japanese society than in Sweden, and that people with lower social status are used to doing as they are told. The second index concerns collectivism-individualism (IDV) – that is, to what extent people in the culture are expected to look after only themselves as opposed to having a broader sense of collective obligation. Individualism ranks higher in Sweden (71) than in Japan (46). Such individualism is seen in Sweden both in the emphasis placed upon personal freedom and time, as well as on freedom of the press.

The third index concerns femininity-masculinity and refers to the traditional assignment of how gender roles appear in a culture (MAS). In masculine cultures such as Japan (95), women are traditionally orientated to the home, children, and tenderness. In feminine cultures such as Sweden (5), the distinctions between men and women largely collapse. The fourth index captures avoidance of uncertainty (UAI), which concerns formal, legal, and religious approaches to unknown matters. The Japanese (92) have a high uncertainty avoidance score, meaning they tend to apply formal rules and expect much structure from organizations and institutions. Sweden (29), by contrast, is a culture with a low uncertainty avoidance score, allowing for more informal rules and relationships.

Following Hofstede's cross-cultural study, other researchers have made important contributions in terms of empirical and theoretical work. Hofstede (1997) suggests that a fifth dimension has emerged as important, focusing on a nation's long-term versus short-term orientation when it comes to values and philosophy. Drawing upon a student survey in 23 countries, Hofstede argues that long term orientation is especially high among East Asian countries, including Japan.

Sundqvist et al. (2005) have used Hofstede's cultural dimensions to compare diffusion of wireless communications in 64 countries. They identified four clusters of nations, among which Scandinavian and Central European countries constituted one cluster. These countries were characterized by extremely low power distance, high individualism and femininity, as well as by a very high adoption of wireless communication. Sweden and Norway were the most developed nations. Sundqvist et al. concluded that wealthy countries that are culturally similar to Sweden tend to adopt wireless services early. Japan constitutes the only exception. While not culturally similar to Sweden, Japan nonetheless had early and high adoption of wireless services. The results lend support to the decision to compare mobile news access in Japan and Sweden, giving their cultural differences but similarities in adoption of mobile communication.

We can now turn to specific cultural correlates of ICT use in Sweden and Japan. As Baron and Hård af Segerstad (2009, in this issue) and Daun (1996) note, Swedes and Japanese generally share a number of social characteristics, such as being reserved, polite, and rather quiet while in public space. At the same time, of course, there are marked cultural differences. Baron and Hård af Segerstad stress that Swedes (unlike Japanese) tend to treat outdoor space as public, and that Swedes are less conformist than Japanese with regard to individual self-expression. These cultural prototypes are

largely reflected in empirical cross-cultural comparisons of mobile phone use by Swedish and Japanese university students (Baron and Hård af Segerstad 2009). Other research on the use of mobiles in Japan has noted that the Japanese are keen to use new technologies. Moreover, they tend to have consistent everyday routines that include long commutes on public transportation. As a result, mobile devices prove particular useful in Japan (Ito et al. 2005). Moreover, Matsuda (2005) argues that small and flexible mobile devices mesh well with Japanese needs, as the Japanese are accustomed to small cars and apartments.

The news media landscapes

Across a number of countries, particular news media are commonly chosen for specific functions. For example, the printed newspaper presents yesterdays news in a format that provides overview and room for lengthy articles while online news offers more updated news, interactivity and multimedia. For a growing number of younger users, online news (typically via computer) is replacing print journalism.

Both Sweden and Japan have strong track-records with respect to newspaper consumption. Sweden and Japan, alongside of Finland, Norway and Switzerland, have among the highest newspaper reach in the world. ("Reach" refers to the number of individuals in a country who read newspapers frequently, here defined as newspapers distributed at least four times a week).

Consider Sweden, Japan, and the US for the year 2006. In that year, Japan had 108 printed daily newspapers, with a total reach of 92 percent of the population. In addition, 102 of the 108 newspapers had online editions. Sweden had 91 dailies in print, with an 84 percent reach, and 75 online editions. In the US, where there were 1478 dailies, there was a 47.7 percent reach. The US also had 1674 online editions, which thereby exceeds the number of printed dailies. One explanation is that non-daily print newspapers provide online daily news (World Association of Newspapers 2008).

In many countries of the world, online newspapers are increasingly encroaching upon readership of printed papers. Nonetheless, print remains an important medium for news dissemination, even in countries such as Japan and Sweden, where the use of online news is high (World Association of Newspapers, 2008). In Sweden, specific groups such as teenagers, young adults, and white-collar workers have led the transition from printed newspapers to online newspapers. This transition has been particularly prominent with respect to sales of single-copy evening tabloids (Färdigh, 2008; Westlund, 2008a). However, when the numbers of users of printed and online newspapers are combined for Sweden, there has been an increase in the number of news consumers since the turn of the millennium (Bergström and Wadbring, 2008). Use of online news editions has increased in parallel to the uptake of the internet. The International Telecommunications Union (ITU) reports that in 2007, the number of Swedes using the internet was 76.8 percent of the population and 36 percent had broadband. In Japan, internet usage was 68.9 percent, and broadband access was 22.1 percent. By way of comparison, in America, the levels reached were 71.9 percent and 23.9, respectively. All these

countries have reached an internationally high level, considering that the average for Europe was 40 percent for internet use and 14.2 percent for access to broadband (ITU, 2007).

Television is another important contemporary medium for accessing the news. Although the following statistics refer to TV viewing in general, not watching TV news particular, they do provide an indication of the role of TV in respective countries. The daily reach of television in 2007 was 84 percent in Japan, compared with 72 percent in Sweden and 99 percent in the United States (RTL Group, 2008). Note that the reach criterion differs slightly across countries: In Sweden, reach was defined as at least five minutes of consecutive viewing per day, while a one-minute measure was employed for the other countries. If an identical measurement would be applied, the reach in Sweden would most likely be higher. The statistics do, however, support Schroeder's argument that while both Japan and Sweden are highly newspaper-centric countries, the role of TV is less prevalent than in US, which is a more TV-centric and less newspaper-centric nation (Schroeder, 2007).

The role of mobile devices

When it comes to the diffusion of mobile devices in 2005, there were 101 subscribers in Sweden for every 100 inhabitants, compared to 76 among the Japanese. In America, the number was 72. (The highest penetration rate, internationally, was in Luxemburg, with 157 subscriptions per 100 inhabitants -- OECD, 2007:118). These data corresponds closely to annual data reported by RTL Group (2008). One measure indicating differences between Japan and Sweden regarding use of mobile data services is given by Ofcom, reporting on the average voice and data revenue per subscription. In Japan about one third is spent on data services, compared to 11 percent in Sweden (Ofcom, 2008).

A report by NTT DoCoMo for the year of 2006 indicates that approximately two-thirds of the Japanese population aged 15-64 occasionally used their mobile for internet browsing (NTT DoCoMo, 2007). Barnes and Huff (2003) argue that mobile internet is highly compatible with Japanese cultural values, which includes enthusiasm for electronic devices. They also argue that the Japanese have a strong cultural tendency towards group conformity, which helps to accelerate adoption and usage once a technology reaches critical mass. Similarly, Heres et al. (2002) conclude that mobile internet has had a wide diffusion because Japanese spend much time outdoors due to their small living space, which offers little privacy. However, accessing news via mobile devices has not gained much traction. When specifically asked about using the mobile to access news, only 12 percent of people indicated that they did so "often" (NTT DoCoMo, 2007). By 2007, the number who "often" accessed mobile news had only grown to 13 percent (NTT DoCoMo, 2008).

In Sweden, although the usage of mobile internet is limited, most Swedes who do use the mobile internet also access news with their mobile devices (Westlund, 2008b, Westlund, 2008c). As of 2005, only 7 percent of the public (ages 15-85) were accessing news via their mobiles at least once a month, a figure that rose to 11 percent in 2007. During that same year, the equivalent measure for using mobile internet was 16 percent (Westlund, 2008b). The heaviest users depending on gender were

men (in all ages), and when it comes to age the heaviest users were found among teenagers and young adults. Most were active users of digital media, and were likely to use their mobiles for internet. Mobile news users tended to have subscription plans for their devices (rather than pre-paid cards), were generally interested in technology, and were likely to have a 3G device. While growth in the number of mobile news users has increased only slowly over the years, those who do use the service have tended to intensify the frequency of their usage, domesticating it into their lifestyles (Westlund, 2008b).

Despite the availability of news functions on their mobile devices, comparatively few Swedes or Japanese appear to use their mobiles to access news. To understand why, we need to move beyond usage statistics to examine the attitudes that Japanese and Swedes have towards this particular function.

ATTITUDES TO ACCESSING NEWS WITH THE MOBILE

Study rationale and research questions

The study rationale for this article is to focus two research questions that each will investigate the current attitudes among the Japanese and Swedish populations in regard to accessing news with the mobile. We have seen that there are competing channels through which people can access news (e.g., print newspapers, online news, radio, or TV), and that current use of the mobile device as a news medium is limited. For some people, the mobile is regarded essentially as an interpersonal communication tool, while others see it as a multimedia device. The former group are unlikely to desire media (such as the news) to intrude on their sphere of interpersonal communication (Westlund, 2007b). As we shall see, many Swedes fall into this category. On the contrary, the Japanese tend to view the mobile device as a multimedia tool that can and should be used to access the internet (Okazaki, 2006, Ito et al 2005). Since use of mobile internet can involve functional areas such as news, the Japanese can be expected to be more likely to welcome mobile news.

Attitudes regarding the usefulness of news on the mobile are related to the perceived need for accessing news with such a device. Previous research indicates that several factors shape the adoption of advanced mobile services. Pagani has studied the adoption of 3G-services in six countries, concluding that usability, user-friendliness, price, and transfer speed are determining criteria for adoption (2004). These results correspond well to another global study (OPA, 2006), as well as results from Norway, stressing the importance of services being useful, functional and easy to use (Pedersen & Methlie, 2004). Several researchers stress the importance of the mobile device in regard to user-friendliness. Kolmonen discusses that the small screen resolution and cumbersome character input are barriers for adoption (2008). Gebauer et.al has studied what factors users find important in mobile devices, concluding that functionality, portability, performance, and usability are important (2008).

In their analysis of mobile usage patterns based on actual traffic data, Ling & Roe conclude that users of the iPhone clearly used more mobile internet data than did users of the other phones. iPhone users downloaded approximately 35 megabytes per month, while general users downloaded about 2 megabytes. While nearly nine out of ten among iPhone users had become mobile internet users, about half of the general users never did so (2009). Also other studies confirm the conclusion that the user-friendliness of the mobile device is an important factor when seeking to understand adoption of mobile internet. Usage of mobile internet is significantly higher among users who possess touch-screen devices or smartphones (Pascu, 2008). We can also conclude from previous research that the specific characteristics of the mobile services are important when it comes to adoption and use of mobile internet services (Bouwman et al. 2007, 2008). The importance of good services is partially confirmed also by Kim et al (2007), who conclude that perceived value is very important when it comes to adoption of mobile internet. Perceived value captures value in terms of money, time and efforts in relation to the value gained from using internet services with the mobile.

Previous studies suggest that usefulness is an important factor in shaping users' attitudes towards mobile devices. Therefore, the initial research question in this study is as follows:

RQ1: How is the usefulness and usability of news on the mobile perceived? This research question will be answered through an analysis of two specific issues: (1) people's felt need for being able to access news on their mobile and (2) people's judgment as to whether the mobile is a good medium for news.

Using ICTs (and media more generally) most often costs money, either upon purchase and/or in the form of running costs. News has become a commodity that, to an increasing extent, is perceived to be available for free – through radio, TV, the internet and free daily newspapers. Previous research shows that there is a cost dimension involved in users' evaluations of how they want to use their mobiles (Pagani, 2004). This article will limit its scope to economic costs, although people may perceive additional costs to include the time to learn how to use the services, as well as the time spent actually using them. There might also be perceived costs in the time spent waiting for page downloads or the recharging of batteries.

Using the mobile for news can be free of charge if the users listen to radio on their mobile, but when browsing news on mobile internet, there will be extra costs involved, either through pay-per-use pricing, step models (fixed amounts of data/messages/calls for each step), or flat-rate pricing. An international quantitative study reported that mobile device users tend to prefer a flat-rate pricing model, since it provides a higher level of fiscal security (Mitomo, 2007). Nonetheless, many people still use pay-per-use models or step models. A Swedish qualitative study illustrated that people experience a high degree of uncertainty about the costs of using mobile internet. The reason was the absence of flat-rate price models, and therefore it was common for Swedes to avoid using their mobile to access news (Westlund 2007b). In light of these studies, it is important to ask whether people find mobile news services as expensive, and if they are willing to pay for such at all:

RQ2: What are the attitudes to cost-related issues regarding mobile news consumption? This research question will be answered through an analysis of two specific issues: whether using the mobile for news services is perceived to be too expensive, and whether people are willing to pay for mobile news services.

Methodology

A survey instrument was developed to answer the two research questions, and the field work of the surveys in Sweden and Japan was carried out during the fall of 2007. In Sweden, data were collected through administration of a postal survey project known as The Mobile Barometer. Administered by Erik Bohlin and Westlund, this bi-annual survey explores Swedish usage patterns and attitudes regarding mobile devices among Swedes aged 16-65 years.ⁱⁱ The Swedish survey was sent by post to 2000 randomly-selected people aged 16-65. A total of 764 people responded, giving a response rate of 38% (the net response rate was 39%). The Japanese data were collected through a national web administered by the Mobile Society Research Institute, a research department within NTT DoCoMo. The Japanese web-based survey collected responses from a total of 2500 individuals aged 15-65 based on a self-selection principle. For respective survey, two attitude statements were analysed for each of the two research questions. These measurements were rather broad, as they aimed at tapping several attributes at once.

For RQ1, respondents were asked to evaluate the following two statements:

- (1) The mobile is a good medium for news.
- (2) I have no need of being able to access news on my mobile.

In principle, respondents could evaluate both these statements without having prior personal experience with mobile news, although evaluating the second statement without prior experience was a more reasonable task. Also RQ2 contained two statements, and while respondents probably needed personal experience or knowledge to evaluate the first statement, such experience was not necessary for the second evaluation.

For RQ2, respondents were asked to evaluate the following two statements:

- (1) Using the mobile for news services is too expensive.
- (2) I am not willing to pay for news services in my mobile.

When making survey research, we as researchers have striven to use the research design most suitable for each country, while still being manageable within our budgets. While Sweden has excellent conditions for postal based surveys, privacy restrictions do not enable this approach in Japan. Making cross-cultural comparisons is methodologically challenging, and two major concerns will now be addressed.

A first concern in evaluations of survey research regards the representativeness of the sample within respective nation. Comparative analyses with other statistical accounts of the Swedish and Japanese populations have been carried out. Those analyses illustrate that the composition of the

survey respondents corresponds rather well with their respective populations. The Japanese survey applied a nonprobability sampling technique to gather equal amounts of responses from men and women and people from different ages. One may assume that a web-based survey produces an skewness towards Japanese using computer internet. While all respondents indeed are users of computer internet, we should keep in mind that there is a wide adoption of internet in Japan. Furthermore, a positive effect of the sampling technique is that it produces limited skewness in the sample in terms of socio-demographic characteristics. Meanwhile, a negative effect was that with a nonprobability sampling technique we cannot know each element's probability of selection in the sample as people were gathered through self-selection. The Swedish survey on the other hand applied a probability sampling technique, ensuring that everyone had an equal chance to participate. The willingness to participate on the other hand resulted in a minor skewness in the sample in terms of socio-demographic characteristics; women and people aged 50-65 were moderately overrepresented in the sample. Meanwhile it should be stressed that although the survey covered ICT's and mobile devices, the sample population were no technology enthusiast but instead expressed a slightly lower interest in technology compared to the Swedish population. For all statistical analyses (cross-tables), Pearson's chi-square test was used to assess significance levels between different groups. This test, which measures independence/goodness of fit, basically illustrates that the frequency distribution observed through the survey sample in fact is consistent with a particular theoretical distribution. All the test results within respective country proved significant at the 1% level (0.01), except for analysis of gendered differences regarding willingness to pay among Swedes (significant at the 10% level (0.086)).

A second concern regards how surveys can be cross-culturally compared. We can conclude that the surveys provide representative samples of respective nation, and although having different procedures and sampling techniques, some of the results can on this basis be compared to each other. When it comes to significance tests, it was not possible to test for significance of difference between the surveys in the two countries using Pearson's chi-square test. The reason is that the data files (SPSS) for respective survey would have to be synchronized into one. Because of differences in languages (Swedish and Japanese), as well as the survey designs, this has not been carried out. On the other hand, statistics between the two nations can indeed be trustfully analysed by taking the margin of error into consideration. This is a statistic expressing the amount of random sampling error in the results of the survey. A larger sample size produces a smaller margin of error, all else remaining equal. The margin of error is therefore especially important to consider when interpreting results based on a limited number of responses. It ascertains us that the comparisons of these results from the surveys in the two countries are significant.

While the two surveys covered similar territory regarding attitudes towards accessing news on mobile devices, the instruments were not entirely comparable. An obvious challenge comes from differences in languages (e.g., were the translated questions interpreted in the same way) and in

culture (e.g., are there differential expectations in the two countries regarding how to respond to a questionnaire). The major challenge for making the cross-cultural comparisons regards that the two surveys used slightly different scales in measuring respondents' opinions. For the Swedish data (which used a 10-point agreement scale, plus offered the option of "no opinion", we tallied scores of 7-10 as constituting agreement. The percent of Swedes who indicated "no opinion" is indicated in parentheses in the tables, following the agreement percentage. For the Japanese data (which used a 5-point scale, where 1= "totally agree" and 5 = "don't agree at all"), we tallied scores of 1 and 2 as constituting agreement. Note that the Japanese survey did not offer a "no opinion" option. It is critical to come to grips with the critical discrepancy in survey design between Sweden and Japan with regard to response options; i.e., Swedes had the option of voicing "no opinion" while the Japanese did not.

The departure points for conducting surveys in the respective countries were not identical, and researchers in Japan and Sweden respectively sought to use the most suitable research design when it comes to scales. In Sweden, the "no opinion" option was included in the survey instrument, since many of respondents were assumed to lack an opinion for some of the statements they were being asked to evaluate. In Japan, where usage of mobile multimedia is generally high, respondents were assumed to have formed an opinion on all of the questions being asked. The two survey instruments are comparable regarding wording of the statements, but less comparable with respect to the scales used.

Our analysis of the Swedish data assumed that respondents who said "no opinion" actually had no opinion, while those who marked a numeric option did have an opinion. This argument is supported by the fact that it was more common among people not using mobiles to access news to express no opinion, in comparison with those who did access news on mobile devices (see Westlund, 2008b). One may question whether all Japanese actually had an opinion for all the statements. (Recall that Japanese respondents were offered a "neutral" option.) One might argue that the neutral response (available to the Japanese) was different from the "no opinion" option (available to the Swedes). And in fact, our survey results show considerable differences between the number of choices of "no opinion" in Sweden and "neutral" in Japan. When carrying out the field work of the surveys the involved researchers felt the approach chosen was most suitable for analysis for each country. When analyzing the data from a comparative perspective, we can come to the conclusion that both populations ideally should have been offered the same scale from which to choose. The Swedish scale revealed that a significant number of Swedes had no opinion regarding mobile news access. Although usage is higher in Japan, there are of course non-users who can be expected to lack an opinion. While it is naturally difficult to estimate the effects on the results coming from different scales, it seems likely that if the Japanese could voice "no opinion" option there would be less neutral responses.

Despite these design differences, the data from the surveys present clear trends that render meaningful comparison of the two countries possible. A major challenge has been how to position the analysis in relation to the rather extensive use of the "no opinion" option in the Swedish survey. These

answers will be interpreted as representing a lack of attitude, while the expression of other options will be interpreted as if the respondent has an attitude.

Case-study results: Sweden

Table 1 summarizes our findings concerning Sweden. We can see that 15 % of the Swedish public aged 16-65 years perceived the mobile as a good medium for news. However, Swedes also revealed considerable uncertainty, as 40 % had no opinion on the matter. Because most Swedes do not have personal experiences using the mobile for news, many may have found it difficult to express an opinion. Uncertainty was greater among females (47 %) than males (31%). Since more men than women (20% versus 12%) agreed that the mobile was a good medium for news, the lower level of uncertainty among men may reflect greater familiarity with the medium. As we noted earlier, it is more common among Swedish men than women to use the mobile for news services (Westlund, 2008b).

When we look at the Swedish data by age cohort, we find that 30-49 year-olds were most likely (21%) to report that they perceived the mobile as a good medium for news. Both younger (16-29 years) and older (50-65 years) cohorts were less likely to share this perception. However, the oldest cohort, in addition to having the least-positive attitudes towards news on the mobile (11%), were also the most likely to have no opinion (53%).

The results from the second attitudinal question illustrates that 55 % indicated they had no need for news on their mobile device, while 18 % expressed that they had no opinion. Gender differences were not significant. Looking at the data by age cohort, 60 % of people aged 16-29 indicated they had need for accessing news with their mobile. (Another 12% expressed no opinion.) Both of the next age cohorts (30-49 years and 50-65 years) were slightly less likely to say they had no need for mobile news access (55% and 54%, respectively), though the oldest cohort was most likely to express no opinion (24%).

Table 1 Percent of Swedes holding attitudes towards the mobile as a news medium in 2007

	Total	Gender		Age		
		Male	Female	16-29	30-49	50-65
<i>RQ1: Usefulness of mobiles for accessing news</i>						
1. "The mobile is a good medium for news"	15 (40)	20 (31)	12 (47)	21 (13)	11 (33)	11 (53)
2. "I have no need of being able to access news on my mobile"	55 (18)	54 (15)	58 (21)	55 (60)	54 (17)	54 (24)

RQ2: Cost factors

1. "Using the mobile for news services is too expensive"	20 (68)	15 (75)	24 (61)	21 (57)	13 (69)	13 (76)	
2. "I am not willing to pay for news services in my mobile"	56 (25)	59 (21)	54 (28)	58 (60)	52 (16)	52 (22)	52 (34)

Source: Swedish Mobile barometer postal survey 2007.

*The Pearson Chi Square test is significant only at the 10% level (0.01) and therefore gendered differences should be interpreted cautiously.

NOTE: Numbers in parentheses indicate % of Swedes expressing "no opinion"

Our second research question concerned perceptions about the importance of cost factors in shaping attitudes towards accessing news on mobile devices. The first attitudinal statement relating to cost that respondents were asked to evaluate was "Using the mobile for news services is too expensive". Among the public, 20% agreed with the statement, though more than two-thirds (68%) marked the option of "no opinion". While the

number of males judging mobile news too expensive was somewhat less than among women (males: 15%, females: 24%), more males than females expressed no opinion (males: 75%, females: 61%). In Sweden, there are more male users of mobile news than females. (In 2007, the number of monthly users was 17% among men and 8% among women.) Also, the frequency of accessing news on a mobile is higher among men than women (Westlund, 2008b). Since it is mostly men who have adopted the mobile as a news medium, it is not surprising to find that fewer males than females judge mobile news to be too expensive. The data also show that the attitude that mobile news is too expensive declines as respondents become older (16-29 years: 27%, 30-49 years: 21%, 50-65 years: 13%). However, at the same time, levels of uncertainty ("no opinion") increase with age (16-29 years: 57%, 30-49 years: 69%, 50-65 years: 76%). This pattern is not surprising when considering that the use of mobiles for news is less common among people aged 50 and upwards (Westlund, 2008b).

The second statement related to costs that respondents were asked to evaluate was "I am not willing to pay for news services in my mobile". Slightly more than half of the Swedes (56%) indicated they were unwilling to pay for mobile news. (The statistic contrasts with the Swedish responses to the other cost question, where only 20% of Swedes agreed that mobile news was too expensive). Responses to the two cost questions also differ with respect to those voicing no opinion. While only 25% of Swedes had no opinion regarding their willingness to pay for mobile news, 68% deemed mobile news too expensive. As we suggested earlier, it is likely more difficult to voice an opinion about the expense of a technology with which you have little familiarity than to voice an opinion about whether or not you should personally be laying out money for a service.

With respect to gender, there were no statistically significant differences between females and males in Sweden regarding unwillingness to pay for mobile news services. When we compare age cohorts, the youngest group (16-29 years) were most likely to be unwilling to pay for mobile news – and the least likely to have no opinion (unwilling to pay: 60%; no opinion: 16%). Members of the middle cohort were slightly less willing to pay (58%) and slightly more likely to have no opinion (22%). The oldest cohort (50-65 years) were the least likely to express unwillingness to pay (52%) but the most likely to have no opinion (34%). We can conclude that youth/young adults and men (in all ages) are least keen on paying for mobile news services, and that it is predominantly the youth/young adults and women that perceive mobile news services as expensive.

Case-study results: Japan

Table 2 summarizes our findings concerning Japan. Taken as a whole, 47% of Japanese perceived the mobile as a good medium for news. There were no gender differences, and essentially no differences between age cohorts. The Japanese attitudes were strikingly consistent across age and gender.

In comparison, the Japanese attitudes to accessing news on their mobile devices varied more among different groups. Taken as a whole, 34 % of the Japanese indicated they have no need of accessing news with their mobiles. Japanese women (38%) were more likely than Japanese men (32%) to indicate they had no need for mobile news. Looking at the Japanese data by age, the results show that the youngest cohort (16-29 year olds) were least likely to agree with the statement (i.e., they had the highest need for mobile access to news), with progressively declining perceived need for access among the second and then third older cohorts. Among people aged 50-65 years, 46 % expressed that they have no need for accessing news with their mobile.

Table 2 Percent of Japanese holding attitudes towards the mobile as a news medium in 2007

	<i>Total</i>	<i>Gender</i>		<i>Age</i>		
		<i>Male</i>	<i>Female</i>	16-29	30-49	50-65
<i>RQ1: Usefulness of mobiles for accessing news</i>						
1. "The mobile is a good medium for news"	47	47	47	48	47	46
2. "I have no need of being able to access news on my mobile"	34	31	38	26	31	46
<i>RQ2: Cost factors</i>						

1. "Using the mobile for news services is too expensive"	59	57	61	51	61	64
2. "I am not willing to pay for news services in my mobile"	71	69	74	67	73	72

Source: Japanese NTT DoCoMo web survey 2007.

When it comes to the attitudinal statement "Using the mobile for news services is too expensive", we find that 59% perceived mobile news services to be too expensive. Slightly more women than men perceived mobile news services as too expensive (females: 61%, males: 57%). Interestingly, older Japanese had more concern about expense than younger Japanese. That is, while only 51% of Japanese aged 15-29 judged mobile news to be too expensive, results were 61% for 30-49 year-olds and 64% for 50-65 year-olds. Comparing these age-clustered data with findings regarding the statement "I have no need of being able to access news on my mobile", we find a corresponding decline, with age, in perceived need among the Japanese (i.e., a numerical rise in those having no need),

The Japanese shows a strong reticence towards paying for mobile news access. As a whole, 71% of Japanese indicated they would not be willing to pay for news services with their mobiles. Interestingly, when we look at Japanese responses by gender, slightly more Japanese females (74%) were unwilling to pay for mobile news, compared with 69% of Japanese males. When it comes to age differences, Japanese aged 15-29 years in Japan agree the least (67%), while the other age groups are positioned slightly higher.

CROSS-NATIONAL COMPARISON AND CONCLUSIONS

Cross-national analyses present a variety of challenges, from coordinating methodology with international partners, to translation issues, to cultural disparities in completing questionnaires. Nonetheless, researchers around the world need to join forces in coordinated investigations of mobile media. As we have attempted to demonstrate in this article, Japan and Sweden are both similar and different when it comes to culture and to ICT usage, and these similarities and differences can be studied empirically. Although the survey questions we used in these two countries were not identical, there are several conclusions that can be drawn based on the empirical analysis reported here.

Our first research question (RQ1) asked, "*How is the usefulness of news on the mobile perceived among Japanese and Swedes?*" Results were based on an analysis of two attitudinal statements. From the data we can conclude that the Japanese have a more favourable perception than Swedes regarding the usefulness of accessing news on the mobile. The Japanese public has a relatively positive attitude towards the mobile as a good medium for news, and attitudes are rather consistent across age and gender groups. Few Swedes find the mobile to be a good medium for news, a result that is closely related to the fact that many expressed no opinion on the matter. Among groups that are characterized as early adopters, it is more common to find people expressing positive or negative attitudes. Similarly, early adopters are more favourably disposed to the mobile as a news medium.

With regard to attitudes regarding usefulness, a slight majority of Swedes indicated they have no need of accessing news on their mobiles, while only one third of the Japanese shared that attitude. In Japan, fewer people among early adopter groups expressed this attitude.

The second research question (RQ2) asked, “*What are the attitudes to cost-related issues regarding mobile news consumption among Japanese and Swedes?*” Results were again based on an analysis of two attitude statements. From the data, we can conclude that the Japanese express least willingness to pay for mobile news, and also find it more expensive than do Swedes. When it comes to perceptions of whether mobile news services are too expensive, the data show that far fewer Swedes (20 %) than Japanese (59 %) find such services to be too expensive. However, this finding is tempered by the fact that two-thirds of Swedes expressed “no opinion” on the question, perhaps because they lacked enough personal experience to formulate a judgment. Among Swedes aged 16-49, there are higher numbers of people that find it expensive than among people aged 50-65. This discrepancy indicates that among people who belongs to early adopter groups (with personal user experience), there are more people having an opinion, being that it is expensive. By way of comparison, in Japan, the 15-29 age group are least likely to judge mobile news services to be expensive. When it comes to willingness to pay for mobile news services, a majority of Swedes (56 %) indicate that they are not willing to do so, but the number was even higher in Japan (71%). When we analyze the data by age and gender, we find that Japanese women and middle-aged Japanese are least willing to pay, while the opposite situation appears in Sweden.

In the opening of this article, we talked briefly about the relationship between social and cultural change on the one hand, and diffusion of technology on the other. Undoubtedly, the mobile phone, in its role as a communication device, has had a strong impact on cultures and lifestyles. The current use of the mobile as a news medium in countries such as Japan and Sweden is limited, when compared to either the use of mobiles for interpersonal communication functions or the use of other news media. Our comparative attitudinal analysis in this article may give us an indication of the future role of this technology in Japan and Sweden, as well as other nations.

As discussed in the introduction, Katz and Aakhus (2002) have proposed the hypothesis that people from different cultures are guided by a shared spirit regarding adoption and use of mobiles. From the results in this article we can conclude that the Japanese have a more favourable perception than Swedes regarding the usefulness of accessing news on the mobile, but that they also are more likely to find mobile news to be expensive and to be less willing to pay for it. It is evident that although Japan and Sweden appears to have superficially equivalent news media systems, there are differences in the spirits among the people from these nations.

It is far more difficult to explain these differences. This article has shown that the news media landscapes in Japan and Sweden are both similar and different, while there are predominantly differences when it comes to cultural aspects. Considering Hofstede’s model (1997), Swedes are described as doing more as they feel like, placing emphasis upon personal freedom and time. Since the

femininity-masculinity index shows little distinctions between men and women, these descriptions can be applied to the entire population. From such descriptions Swedes could be expected to be more favourably oriented towards using the mobile device, as it is a personal medium that enables media usage beyond spatial and temporal boundaries. On the other hand, Japan constituted the only exception from Scandinavian and Central European countries in the previously discussed study of Sundqvist et al (2005) on early adopting nations of wireless communications.

Our study provides evidence for the fact that technological advancements do not necessary generates immediate adoption. Although contemporary technological architecture has transformed the mobile into a multimediu, it is obvious that the mobile still mostly is used and perceived as an interpersonal communication device by the inhabitants of Sweden and Japan (see the articles by Baron & Hård af Segerstad, Axelsson, and Bolin in this issue). People, including the typical early adopters, still use the mobile mostly for voice calls and messaging. Much as the internet has radically changed our global media landscape and the way people use media and consume news, the mobile device is likely to have a comparably profound impact in the long run.

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ⁱ In the survey a scale ranging from 1 to 5 was used. First a mean score and a percentage for all particular responses in each country were computed. Then factor analysis was used to sort the survey questions into clusters, and to identify the three survey questions that best correlated with respective cultural dimension index. To assemble an index ranging from 0 to 100, the three questions were given equal weight in a mathematic formula. The three scores were added or subtracted after multiplying each with a fixed number, and finally adding another fixed number. The indexes should be viewed as relative, not absolute positions.

ⁱⁱ The project is based in the Department of Technology Management and Economics at Chalmers University of Technology in Sweden.