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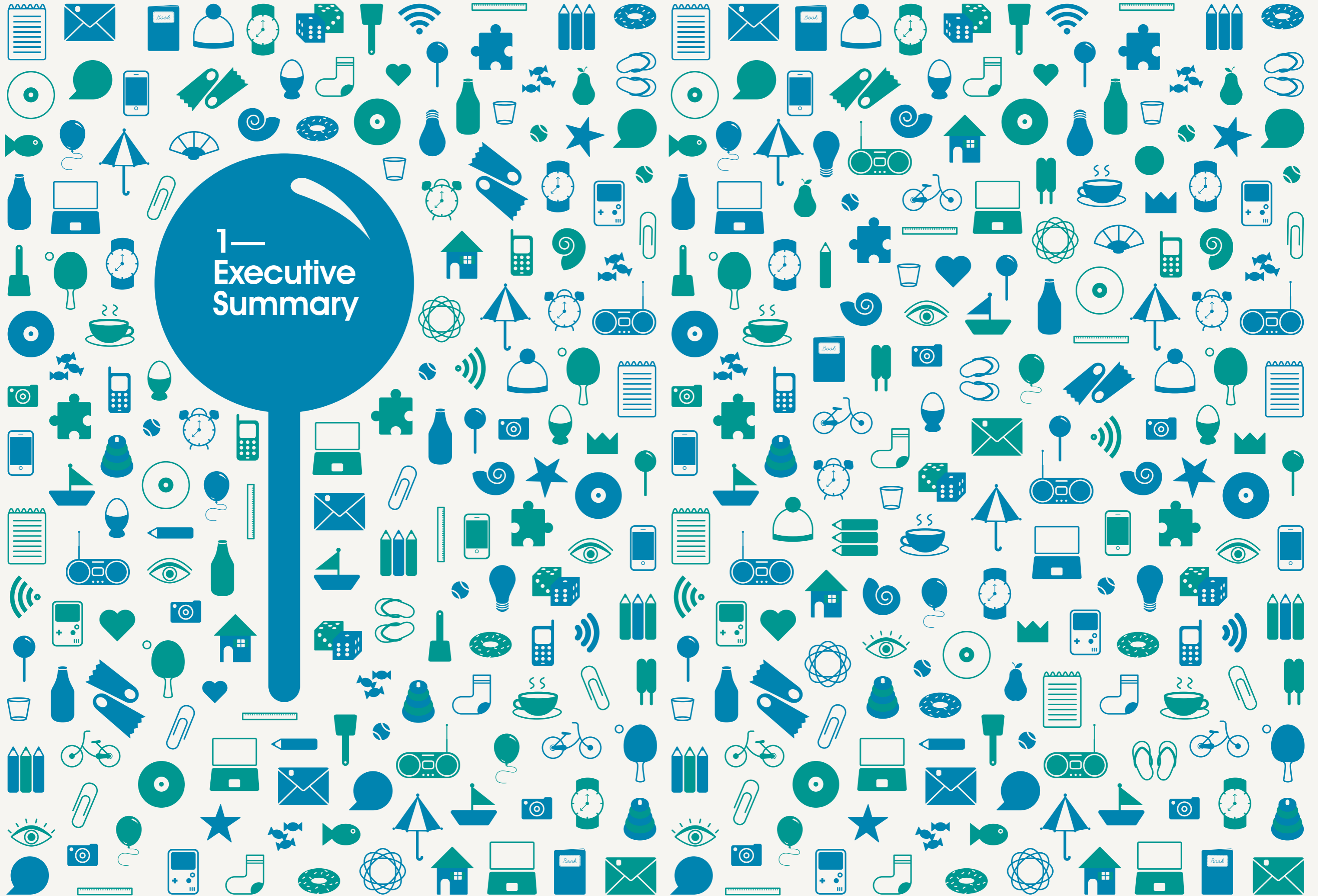


Telcel, Mexico

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1 Executive Summary



1

Executive Summary

The rapid rise in penetration of mobile phones, including those capable of providing access to the internet, means that mobile users are now able to access information anytime and anywhere, and can be connected with others regardless of their location. In many parts of the world children and teenagers are confident users of new mobile technology and enthusiastic consumers of the mobile internet.

In 2009, NTT DOCOMO's Mobile Society Research Institute and the GSMA jointly conducted an international research study examining the ways in which children communicate through mobile phones, and the role that the mobile phone – a personal medium – plays in the formation and development of personal relationships by and between children. This study builds on a previous research programme conducted by the same organisations in 2008, which considered the driving forces behind the penetration of mobile phones amongst children.

The report is based on questionnaire surveys conducted in the summer of 2009 in six countries: Japan, South Korea, China, India, Mexico and Cyprus. Approximately 6,000 pairs of respondents were interviewed, each consisting of a child aged between eight and 18 and his or her parent or guardian.

The key findings of the survey are as follows:

1. The age of a child is a significant factor in the ownership of a mobile phone and in the frequency and type of mobile usage. In all the countries surveyed, ownership of mobile phones increases at the age of entry to junior high school. In Korea and Cyprus, ownership by the age of 13 is around 90% of children. In the other four countries, Japan, China, India and Mexico, at the age of 13 between 40% and 60% of children own mobile phones, and ownership increases progressively, reaching 80% to 90% by high school (age 16+). The three most prevalent reasons given by parents for providing their child with a mobile phone, which are common to all the countries, are: for contacting them in case of emergency; as a result of advancing to a new school; and for making contact with their mother. In China alone, making contact with the father is also a reason.
2. The use of messaging (SMS/MMS/IM/Email) by mobile phone varies from a minimum of 20 messages sent and received per day and a maximum of 60 (in Korea and Cyprus). As age increases, the use of mobile phone messaging also increases, while the use of voice calls does not increase as much. Japan has a particularly high ratio of messages to calls, with children sending and receiving between 15 and 20 times as many messages as voice calls. India is an exception; here the use of messages is not dependent on age, and calls increase with age, albeit only slightly. This is presumed to be caused by the large number of shared mobile phones in India.



3. Children's usage of mobile phones is influenced by the usage patterns of their parents. Particularly in terms of call frequency, in those countries where parents' call frequency is high, there is a tendency for the call frequency of the children to be high as well; this can be interpreted as the influence of the parents' activity reflected onto the children. However, there is a low correlation between children's and parents' usage of messages, and no high use of messages by parents was observed in Cyprus, Korea and Japan, where there is high use of messages by children. We can conclude that children have discovered uses for messaging within their own generation. (Cost may also be a contributing factor. For example, the reason for the low number of calls and high number of messages in Japan is believed to be the relatively low cost of messages compared with the cost of calls.)
4. Mobile phone internet use is relatively low (<40%) in all countries except Japan, where 70% of children use the mobile phone internet by the age of 14. Frequency of use is also very high in Japan (40 times per week) compared to other countries where mobile phone internet use occurs around 5-15 times per week.
5. When questioned on their feelings about using mobile phones, more than 70% of children agreed with the statements, "fun to use," "convenient," "I fiddle with it when bored," and "I feel insecure without one," indicating that the mobile phone has now become an essential medium for children. There were no differences between the countries on this point and the percentage of children who indicated that they "feel lonely when they receive no mobile calls or messages" remained below 50%.

6. The majority of parents indicated that they have concerns over their children's use of mobile phones. There are no significant international differences regarding the concerns of parents in terms of the use of mobile phones by their children; however, in terms of concern regarding the possible ill effects of electromagnetic waves on health, Japan has a markedly low percentage of parents who are concerned (<40%), compared to other countries (>65%). With regard to the rules imposed by parents for the use of mobile phones by their children, the most common one was imposing an upper limit on the cost. In addition to this, in Japan and Korea, restrictions are imposed by parents on the functions that can be used by their children. This is believed to be due to the widespread use of high function mobile phones and internet access functions.

7. Several factors characterise mobile communications between children and their parents. Firstly, the main method for child-parent mobile communication is voice calling. This contrasts sharply with the overwhelming use of mobile messages by children for communicating with their friends. This is particularly the case in India, where around 70% of children do not message their parents. Second, children tend to communicate more with their mother using their mobile phone than with their father (except in India, where children tend to communicate with both parents equally).

8. When the relationship between the frequency of mobile phone communications and children's trust in their parents was examined, the research showed that the ownership of mobile phones has almost no bearing on children's level of trust towards their parents. However, there is a positive correlation between frequency of communication and degree of trust; the more children communicate with their parents, the more they trust them.

The degree of correlation increases from mobile messages to calls and then to face-to-face conversations, indicating that the degree of trust is in proportion to the amount of information provided by the method of communication.

9. Children communicate with their friends differently than with their parents, with mobile messaging being by far the most frequently used method (more than five times as frequently as voice calling in Japan, Korea and Cyprus). The only exception to this is India, where the number of mobile messages sent to friends remains at less than twice the number of calls, and more than 50% of children do not communicate with their best friends by mobile message. One of the reasons for this is believed to be the high rate of shared mobile phones in India. Frequency of children's communications with their friends varies widely between countries and in India and Mexico communications tend to be more dispersed than in the other four countries, where children have smaller circles of friends with whom they communicate by mobile phone. In most of the countries, PC e-mails are used as a method of communicating with friends in the same manner as mobile phone messages. Japan is an exception to this, however, with mobile phone messaging being preferred to PCs for children's communication with their friends.

10. An investigation of whether mobile phone communications enhance relationships with like-minded friends or relationships with friends who hold opposing views found that no substantial differences exist between the two. This would seem to disprove the theory that mobile phone communications lead to an increase in communications with the same partners, homogenising relationships with friends and leading to lower tolerance of those who hold different views or have a different outlook.



11. The research showed that the ownership of a mobile phone and the frequency and type of mobile phone usage can affect the social attitudes of children in both positive and negative ways. Our investigation, based on six concepts of social attitude (reciprocity, general trust, innocence, utilitarianism, empathy and privatisation) found that the age of a child has a significant impact on his or her social attitude. In some countries mobile communications were found to have a positive effect on concepts such as reciprocity and general trust while in others the effect was negative for concepts such as utilitarianism and privatisation. However there were significant differences between the countries in survey methodologies and as there are many other factors that influence social attitude, one must be very careful about drawing conclusions with regard to the influence of mobile phones. Further work is required to gain deeper insight into this subject.

12. As use of mobile phones becomes more widespread, the mobile medium is increasingly being used to communicate different types of content. Gossip is now commonly exchanged in calls, messages and over the internet as well as in face-to-face communication; this tends to increase with age up to the 13-15 year age group where it peaks. We found that the exchange of rumours about people via mobile phone communication occurs in all six countries, and although it is still less frequent than in face-to-face communication, it is increasing rapidly. 'Good' rumours communicated in this way tend to outweigh 'bad' ones. By country, the frequency of rumours is lowest in Japan and China, where the percentage of those who exchange gossip by mobile phone is between 10% and 30%. However, this percentage increases to between 60% and 70% in Mexico and Cyprus, indicating that mobile phone communications is becoming a mainstream tool for passing on rumours in these countries. However, we did not find any evidence that children's sensitivity to reputation issues increased as mobile phone communications became more active.



2—
Introduction

2 Introduction

1 A hypothesis stating that it is relatively easy to access anyone in the world by following friendship links, which was verified by the small world experiment (1967) conducted by Stanley Milgram, a social psychologist. In this experiment, it was proven that two randomly selected Americans were linked via an average of six acquaintances.

2 To see a full report of the study in 2008, please visit: http://www.moba-ken.jp/wp-content/pdf/gsmadocomo_report0902.pdf

It was first suggested over 30 years ago that human society is a small world network¹. Since that time, the propagation of information, undertaken via word of mouth, letter, telephone, newspaper, television and radio, has expanded exponentially in terms of speed and range in the information society through the widespread use of the internet.

Digitised characters, images, video and voice information are now referenced over time and space, and the impact and influence of the information has sometimes proved to be far stronger than society could have imagined. With the incorporation of internet technology into mobile phones, mobile phone users are now able to access information anytime and anywhere, and can be connected to other people regardless of their location.

In 2008, the GSMA and the Mobile Society Research Institute conducted a joint study on the mobile phone communication of children in five countries around the globe: Japan, Korea, China, India and Mexico. The survey results confirmed that the mobile phone is beginning to establish its position as one of the most personal media used by children. It is evident that mobile phone ownership has a correlation with age, sex, household income, and the ownership of other media equipment (video games, PC). Network externality (meaning that when people around an individual own one, then the individual wants one too) also plays an important role. Furthermore, the greater the usage of mobile messages (SMS/MMS/IM/Email), the more children think of mobile phones as an essential tool for life².

In 2009, in an effort to further quantify children's mobile phone usage and to identify some of the implications of its role in children's society, the GSMA and the Mobile Society Research Institute conducted another survey to clarify how the use of mobile phones affected children's personal relationships.

The Republic of Cyprus was added to the five countries in which the survey had been conducted the previous year, making a total of six countries.

Aimed at children in Japan, South Korea, China, India, Mexico and Cyprus who were between the ages of 8 and 18 at that time in 2009, the purpose of these surveys is to shed light on the state of mobile phone usage by these children, its role in relationships between children and their parents and between children and their friends, and how children's social attitudes are affected by their use of communications.

The survey was conducted in the summer of 2009, and the subjects were children from the ages of eight to 18, paired with their parents, with 800 to 1,000 pairs for each country. The survey was conducted by postal mail, face-to-face interview or telephone. Analysis of the results not only highlights cross-country differences and similarities but provides a fascinating insight into some of the social impacts of the mobile phenomenon on young people, many of whom have never known a world without personal computers and mobile phones and who take their use in relationship building and social interaction entirely for granted.

As the second project in a planned programme of ongoing international research into children's use of mobile phones, the 2009 survey also enabled the GSMA and the Mobile Society research Institute to track changes in data relating to children's ownership and usage patterns since the previous survey in 2008. As the unique and lively communication world of children continues to evolve at an unprecedented rate, we believe this sort of benchmarking over time will have an increasingly valuable role to play, particularly in identifying and tracking similar and contrasting trends and impacts in very different countries and cultural environments.

3 ARPU is defined as the total recurring monthly revenue of mobile operators divided by the weighted average number of customers during the same period.

4 Population and GDP: Social Indicators -United Nations (Jan. 2010) <http://unstats.un.org/unsd/demographic/products/socind>

Mobile penetration and ARPU (blended): Wireless Intelligence -GSM Media LLC, (Jan. 2010)

Penetration of PC Internet: Internet Indicators -ITU (Jan. 2010) http://www.itu.int/ITU-D/ict/eye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/InformationTechnologyPublic&ReportFormat=HTML4.0&RP_intYear=2008&RP_intLanguageID=1&RP_bitLiveData=False

2-1 Country Indicators

Table 2-1. Country indicators

	Japan	Korea	China	India	Mexico	Cyprus
Population (in 000s) (2009)	127,156	48,333	1,345,751	1,198,003	109,610	871
Per Capita GDP (US\$) (2008)	38,578	19,296	3,292	1,061	9,964	31,551
Mobile Phone Penetration (4Q, 2009)	86%	100%	38%	45%	76%	160%
Average Revenue Per User (US\$) (4Q, 2009) ³	58.1	33.7	10.0	4.3	13.9	39
Penetration of PC Internet (%) (2008)	76%	77%	23 %	4%	22 %	43%

Source⁴

2-2 Key figures from the survey

Table 2-2. Key figures from the survey on the use of mobile phones by children aged 8-18 years

	Japan	Korea	China	India	Mexico	Cyprus	Total
Mobile Phone Users (%)	52.6	89.5	42.3	54.1	63.6	86.1	64.7
Messages (SMS/MMS/Email/IM) Users (%)	97.3	99.0	94.7	42.0	93.7	94.8	88.1
Mobile Phone Internet Users (%)	68.6	30.8	36.7	6.1	13.9	13.8	26.9

Unit=%



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5. Since the sampling method varies from country to country, it would be incorrect to make an international comparison of the absolute level of mobile phone penetration.

Table 2-3. Mobile phone penetration among children surveyed by age (%)⁵

	Japan	Korea	China	India	Mexico	Cyprus	Total
8	7	na	3	na	na	20	7
9	13	na	11	na	na	45	18
10	15	53	13	39	33	51	33
11	18	74	16	34	44	68	41
12	32	87	30	39	47	84	51
13	41	94	44	53	64	97	68
14	45	92	47	50	63	98	71
15	82	95	61	54	77	99	78
16	96	97	85	60	77	100	87
17	96	97	89	69	78	99	87
18	100	98	92	78	88	100	91
Total	52.6	89.5	42.3	54.1	63.6	86.1	64.7
N	1,002	1,000	800	1,004	1,018	800	5,624

2-3 Summary of the comparative characteristics by country

Japan:

Children in Japan tend to make fewer calls but send numerous mobile messages. They send and receive 17 messages per voice call on average, far more than the three to nine messages sent per voice call in the other countries. The number of voice calls is low, even at an absolute level, with children in Japan making only around two calls a day.

This is about one-half to one-third of the call volumes in the other countries. On the other hand, Japan leads the other countries by a long way in terms of the usage frequency of the mobile phone internet. In Japan, 70% of children access the internet from their mobile phones, a substantial percentage particularly when compared with 30% to 40% in China and Korea, and around 10% in the other countries. The frequency of weekly use is 40 times – far greater than the five to 15 times experienced in the other countries. This is believed to be due to the widespread use of specific communication types, such as SNS and BBS. In communications with friends, however, PC e-mail is seldom used in Japan and communication is more biased

towards mobile phones than in the other countries. In communication with parents, the tendency to communicate with the mother is stronger; the frequency of communication with the mother is about twice that of mobile messages and calls to the father. In addition, Japanese parents are not particularly concerned about the possibility of ill-effects of electromagnetic waves on the human body.

Korea:

Mobile phone ownership in Korea is high, with around 90% of children owning mobile phones in junior high school compared with ownership of around 50% in many other countries. Mobile message frequency is also high, with the number of messages sent per day reaching 50 in junior high school. In terms of communication with the parents, the results were similar to Japan. The communication frequency with the mother is about twice as high as that with the father. Parents in Korea have fewer concerns regarding the use of mobile phones by their children.

China:

Mobile phone ownership in China follows a similar upward trend as in Japan, India and Mexico. The ownership reaches 50% in junior high school, and close to 80% during high school. Mobile phone internet use is popular, second only to Japan, and 40% of children use the mobile phone internet after entering junior high school. One characteristic specific to China is the fact that communication with the father was ranked highly amongst the reasons for providing the child with a mobile phone.

India:

Children in India tend not to send mobile messages. Calls are made to communicate with their parents, and the number of mobile messages remains at around one-fifth of the number of calls.

The use of messages by children in India is extremely low. The same applies to contact with friends; while the number of messages sent to friends is five times as many as the number of calls in other countries, it is only twice as high in India. It is the only country where the use of mobile messages does not increase with age. In addition, the number of restrictions imposed on the use of mobile phones is very low in India. One of the reasons why this characteristic has emerged is the high rate of mobile phone sharing in India.

In addition, in India, the communication parties are not a few specific friends, but tend to encompass a wider group. Trust toward the parents is stable and high, regardless of age.

Mexico:

Mobile phone ownership by children in Mexico increases in the same way as it does in Japan, China and India. Ownership reaches 50% in junior high school and close to 80% during high school. As in the other countries, there is more communication with the mother than the father, and mobile messages are the main form of communication with friends. One characteristic specific to Mexico is the fact that there is no bias towards communicating with specific individuals, communication tends to be widespread. Another characteristic is the fact that children's trust parents is extremely high, and this does not change at all with age.

Cyprus:

Mobile phone ownership by children in Cyprus is high, as in Korea, reaching almost 90% by the time they enter junior high school. Mobile phone ownership commences the earliest of the six countries, beginning in the upper grades of primary school. The frequency of communications (the combined total of mobile messages and calls), is the highest of all six countries. Communication frequency with the parents is also high, and children tend to communicate more frequently with the father than in the other countries (except China). Alongside Korea, the frequency of mobile message use is in the highest category. In addition, more than eight voice calls per day are made, significantly more than in the other countries.

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6. County-to-county comparison of response rate is not appropriate since sampling method varies from country to country. See 'survey methodology' on page 100 – 107.

2.4 Survey methodology

This chapter provides an overview of the survey methodology conducted in six countries (Japan, South Korea, China, India, Mexico and Cyprus) between July 2009 and September 2009. The surveys were conducted by researchers or research companies in each of the surveyed countries. The survey questionnaires were made up of two sections, comprising questions for children to answer and questions for their parents to answer. Survey details by country are shown below.

In Japan, South Korea and Cyprus, samples were taken for this survey. However, it should be noted that, all around the country in China, India and Mexico, the samples were taken mainly in urban areas and the respondents in this survey do not necessarily represent children nationwide. Detailed sampling methods for each country are described in Appendix 1.

Table 2-4. Data sampling

	Japan	Korea	China	India	Mexico	Cyprus
Date	July & Aug, 2009	Aug, 2009	Sep, 2009	Aug, 2009	Sep, 2009	Sep, 2009
Number of respondents	1002	1000	800	1004	1018	800
Male child	517	500	408	522	508	339
Female child	485	500	392	482	510	461
Children's age range	8–18	10–18	8–18	10–18	10–18	8–18
Survey mode	Two-stage stratified random sampling, drop-off survey	Quota random sampling, personal in-home survey	Two-stage stratified random sampling, personal in-home survey	Stratified random sampling, personal in-home survey	Three-stage stratified random, personal in-home survey	Two-stage stratified random sampling, telephone survey
Response rate ⁶	59%	7%	12%	24%	5%	21%

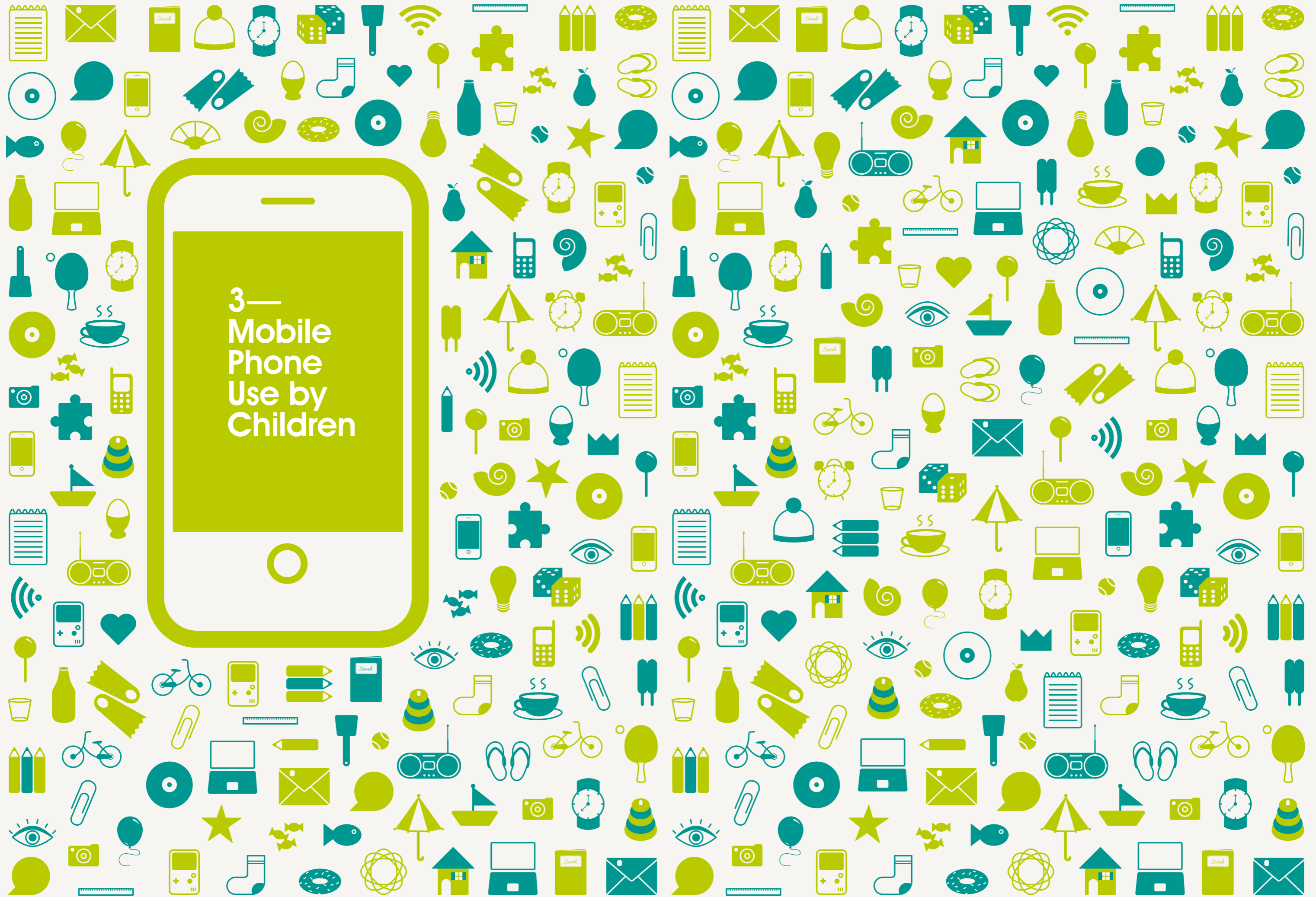
2-5 School system definition

Table 2-5. Children's age and school level

School	Primary School	Junior High School	High School
Age	6–12	13–15	16–18



3—
Mobile
Phone
Use by
Children



3 Mobile Phone Use by Children

The distinguishing characteristic of the mobile phone, when compared to other communication media, is its personal qualities.

But with children, it is often the case that at a young age the mobile phone is shared with other family members, and children's patterns of use appear to differ from those of adults.

How much and in what way are children conducting mobile phone communications? In this chapter, we analyse children's usage of mobile phones in each country. We will illustrate how the ownership, call frequency, mail frequency and other factors differ by age and country. Because age is an important factor in the use of mobile phones by children, the effects of age must be carefully considered.

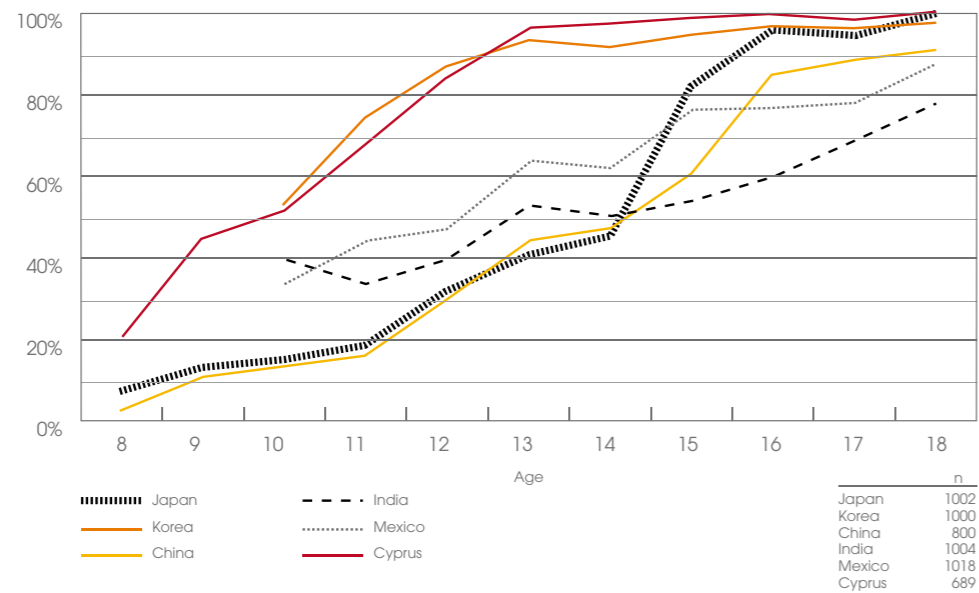
3-1 Mobile phone ownership pattern

The change in penetration rate by age is shown in figure 3-1a. It can be seen that in

Korea and Cyprus, there is a tendency for children to own a mobile phone from an earlier age than in the other countries. In Korea and Cyprus, over 50% own a mobile phone at the age of 10 and almost 100% do so by the age of 13. In primary school, ownership accelerates in the upper grades, and by junior high school, mobile phones are owned by almost 100%. The remaining four countries show a similar trend, reaching 50% at around the age of 13 and exceeding 80% and approaching 100% after the age of 16. The time lag is about three to five years, i.e. in Japan, China, India and Mexico, children start owning mobile phones three to five years later than in Korea and Cyprus.

One characteristic of Japan is that ownership soars at the age of 15, indicating a trend for it to start when children enter high school. A rapid increase is also seen in China at the ages of 15 and 16, indicating the same phenomenon. No such leaps are observed in the other countries.

Figure 3-1a. Penetration by age



Also we should note that the shared phone is very popular in India. In India, 70% of child mobile phone owners share their phone with others, whereas only 2 or 3% of children do so in the other five countries. Figure 3-1b shows the penetration rate in India broken down by shared phone and private phone. Note that the total penetration rate is not equivalent to Figure 3-1a because in Figure 3-1a questions were asked to children and Figure 3-1b questions were asked to parents. As shown in this figure, shared phones are overwhelmingly dominant until the age of 13, and the private

phone gradually increases through ages 14-16, with acceleration at age 17 and 18. Private phone ownership becomes common at high school level in India.

To survey the ages at which children began owning mobile phones, we asked parents to respond with the age when they first provided mobile phones to their children. The results can be seen in Figure 3-2a. Spikes can be seen at ages 11-12 for Cyprus and 13 for Korea, showing that ownership begins earlier there than it does in the other countries.

Figure 3-1b. Penetration of mobile phone in India

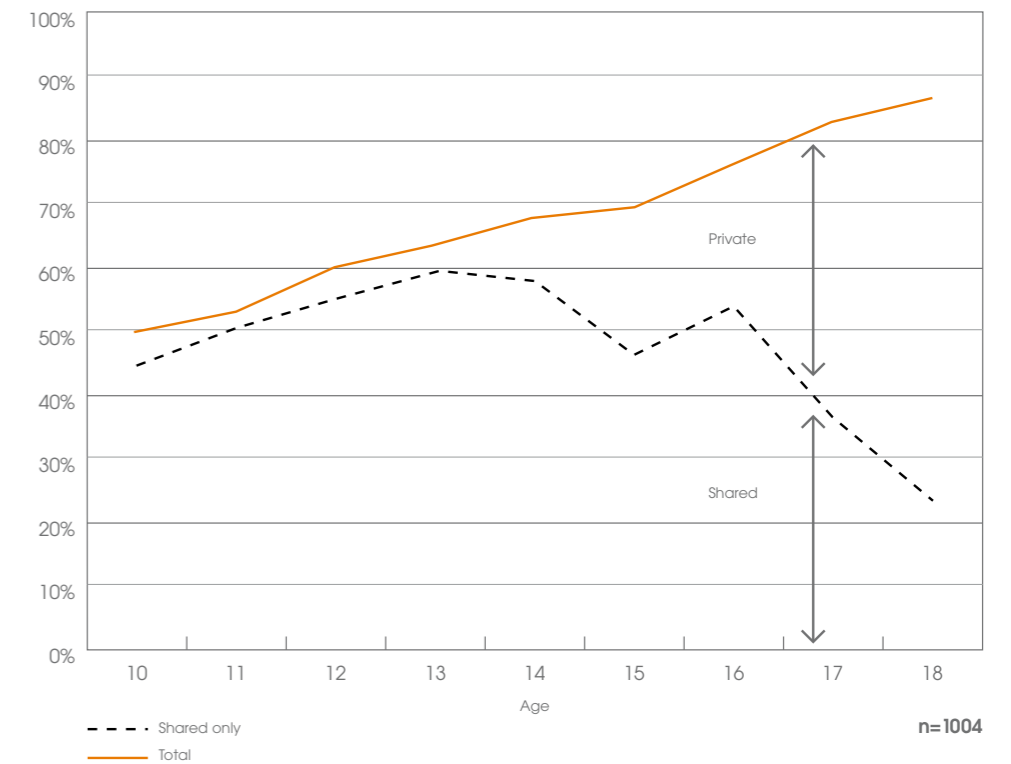


Figure 3-2a. Starting age of having a mobile phone

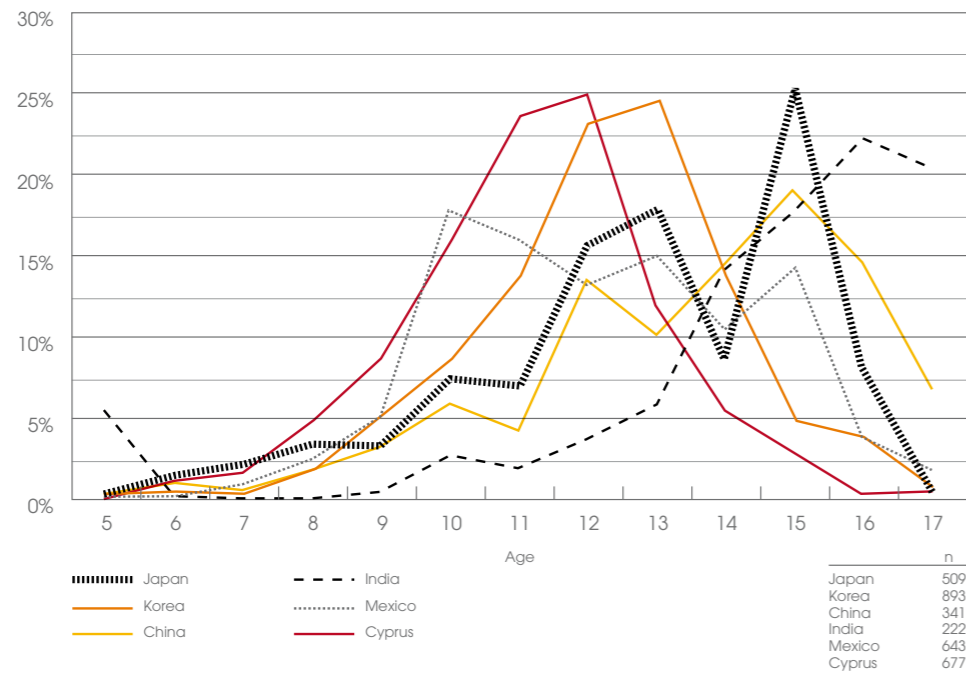


Figure 3-2b. Starting age for mobile phone ownership of 17-18 year olds

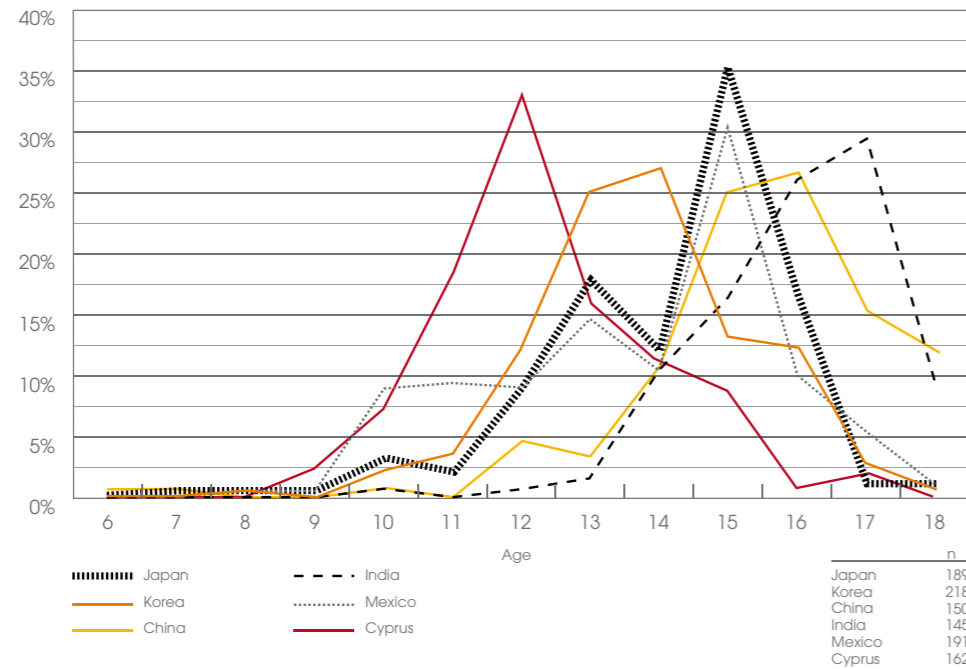


Figure 3-2a is dependent on the age distribution of the current samples, and the age of ownership tends to be biased towards a younger age, because, for example, if you ask a 12-year-old at what age they first owned a mobile phone, their answer cannot be greater than 12. When the number of children below the age of 12 in the sample increases, the age of ownership will naturally decrease.

To remove this bias, it is necessary to limit the questioning to the highest age group, and ask them at what age they first owned a mobile phone. By using this method, there is a possibility of ownership at all ages, and this will produce an ownership possibility at each age that is not dependent on the current ownership distribution⁷.

⁷ However, this does provide a different bias in that it reflects ownership rate of the past.

⁸ Another item in the survey asked about the frequency of text messages and calls to the father and mother. Looking at the responses, more contact with the father is made in China than in Japan or Korea, but the frequency of calls and text messages to the father does not differ greatly in India or Mexico, or is higher in some cases than it is in China, and it cannot be said that China has a particularly high frequency.

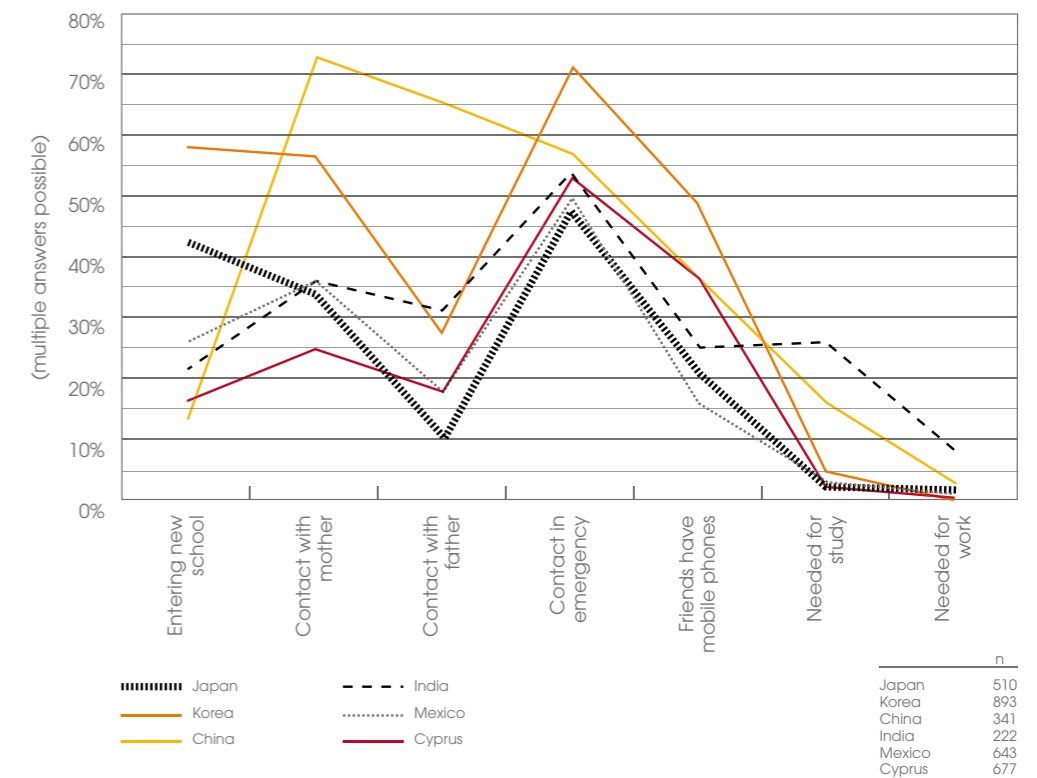
To observe this, Figure 3-2b is the redrawn chart using only data from children aged 17-18. This chart shows at what age children aged 17-18 first owned mobile phones. As expected, Cyprus has the lowest age, with a peak at the age of 12. Korea has a peak at ages 13-14, and these two countries have the lowest average ownership age. It can be seen that mobile phone ownership soars upon entry to junior high school in Cyprus, and during junior high school in Korea. There is an obvious spike in Japan and Mexico at the age of 15, indicating that mobile phones are purchased when children enter high school. China and India both show similar results, however the slope is distributed evenly after entry to high school, and the growth is gradual rather than everyone owning a mobile phone at the time they start high school.

Figure 3-3 shows the reasons for providing mobile phones to children. The responses were obtained from parents, who were asked for the reasons why they provided mobile phones to their children. We listed seven possible reasons provided on the horizontal

axis, and multiple responses were allowed. The patterns by country showed more or less similar results, with "contact in an emergency," "entering a new school" and "contact with the mother" being the most prevalent reasons.

Looking at it country by country, however, there is one country that is quite different from the others: China. In China, "contact with the father" achieved a high percentage in the responses from the parents, whereas this reason did not score as highly in all the other countries. In the other countries, there was a significant difference between contact with the mother and contact with the father, but in China, there were only very small differences seen between these two reasons. In reality, there is no evidence indicating that more messages (SMS, MMS, Email, IM) and calls are made to the father in China than in other countries⁸. The fact that the reason for ownership in China of "contact with the father" received more responses than other countries is to be considered not as a result of more communication with the father, but is most likely for other reasons (such as cultural factors).

Figure 3-3. Why did your child start using a mobile phone?



3-2 Frequency of Messages and Calls

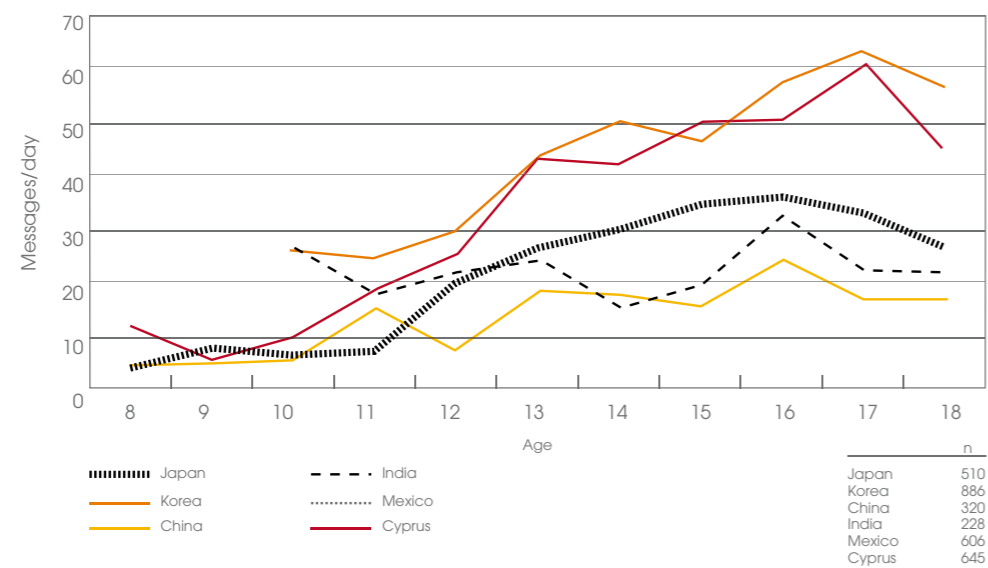
We asked for the number of mobile messages (SMS, MMS, email, IM) sent and received per day. The average number of the sum of messages sent and received by age is shown in Figure 3-4.

Korea and Cyprus lead the other countries by far in terms of the frequency of use of messages. The difference becomes significantly greater after the age of 13. While other countries show a gradual increase, these two countries show a sharp increase and leave the others well behind. The age of 13 is equivalent to junior high school, and it can be seen that the use of messages increases in the early stages of junior high school. In Japan, the use of messages increases between the ages of 11 and 13, and although it does not occur to

the same extent as in the top two countries, a similar accelerating pattern can be observed. The use of messages in China and Mexico is not as high in as the three countries mentioned above, and is a slow steady increase without acceleration in tandem with age. In India, the tendency to increase with age does not necessarily hold true.

How about calls? Figure 3-5 shows the transition in the number of calls per day by age. Of note is Cyprus, reaching eight calls per day at the age of 11 and remaining high, leaving the others far behind. In Japan, in contrast, call frequency is particularly low, and with the exception of nine-year-olds, it is consistently below two calls per day. On the whole, the number of calls increases with age, but in both Korea and Japan, it remains flat and the number of calls does not increase with age.

Figure 3-4. Number of messages per day (sent and received)



Whether children use a message or make a call as the method of communication is a very interesting subject. We divided the number of messages by the number of calls, and calculated the ratio of messages to calls. Figure 3-6 shows the results. The larger the figure, the more it is inclined towards messages rather than calls. If the figure is small, then it means there is more emphasis on calls.

This shows the marked differences of Japan and Korea (particularly Japan) from the rest. All countries except Japan and Korea have around three to five times more mobile

messages than calls, but the numbers jump up to eight to ten times for Korea and reach almost 20 times for Japan. This indicates that in Japan and Korea, communications are made centred on messages, especially in Japan, where the method of communication is biased toward messages. Looking at it by age, there is little difference between the countries before the age of 11, and the bias toward messages begins after the age of 12. In Japan, there is a substantial jump from age 11 to 12, and the rapid use of messages that starts after entering junior high school can be observed from this.

Figure 3-5. Number of calls per day

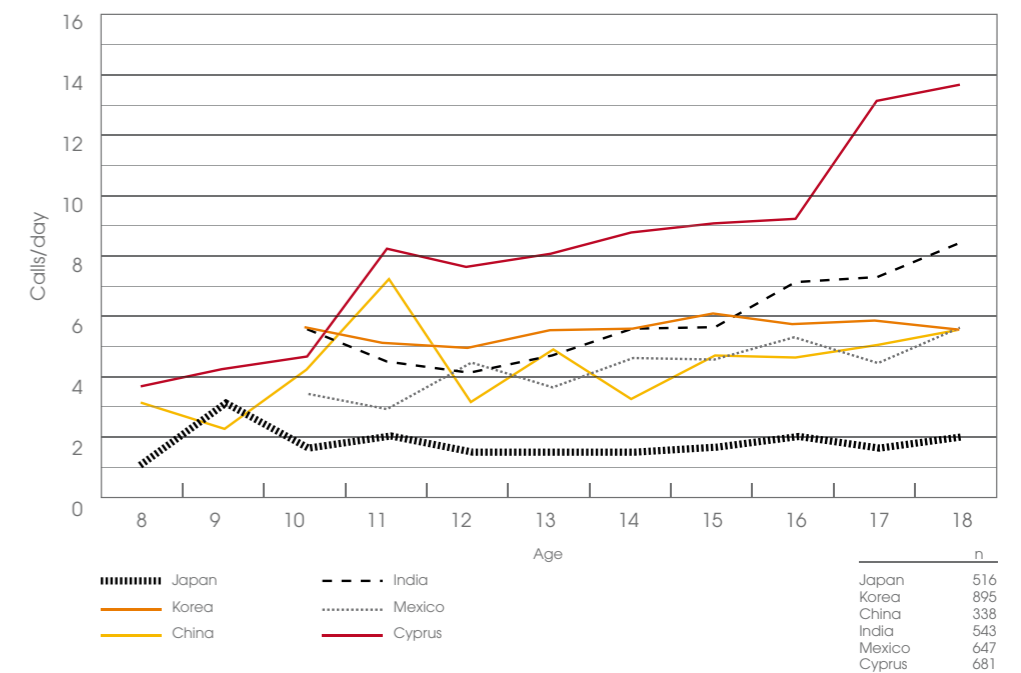
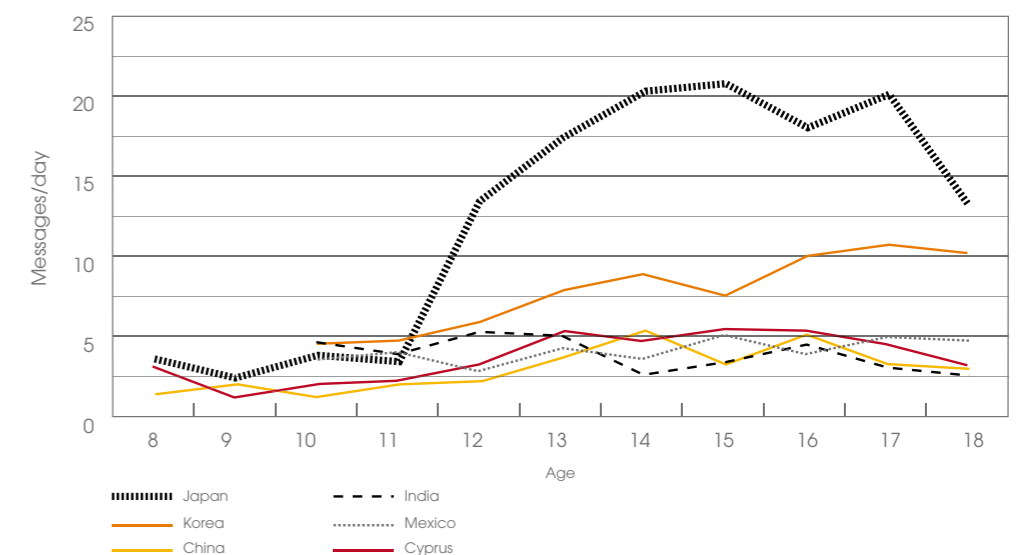


Figure 3-6. Number of messages/calls per day (message intensity)



What about overall communication frequency: the sum of mobile messages and calls, rather than the ratio of mobile messages to calls? From the preceding charts, Cyprus and Korea are expected to be in the leading positions. Since there is a difference in variance of the distributions between mobile messages and calls, we need to standardise these two types of communication. The average of both mobile messages and calls was subtracted first, and they were divided by its standard deviation.

By this transformation, distributions of mobile messages and calls were standardised into average zero with variance 1, then they are added to produce a standardised index. Figure 3-7 shows the results.

As expected, Cyprus had the highest communication frequency, with Korea following. There were no significant

differences between the remaining countries. On the whole, there is a gradual increase with age, indicating an increase in communications as age increases.

Are the differences between the countries in terms of the frequency of calls and mobile messages influenced by parent's own frequency of use? Let us compare the averages for children (over the age of ten for this comparison) and for parent's. Figure 3-8 indicates the number of mobile messages sent and received each day.

The frequency of mobile messages sent by children (c) is higher for children from Korea, Cyprus and Japan, but their parents do not register higher frequency than the parents (p) in the other countries. Parents do not appear to affect the high frequency of messages sent by children in these three countries.

Figure 3-7. Number of messages/calls per day (standardised index)

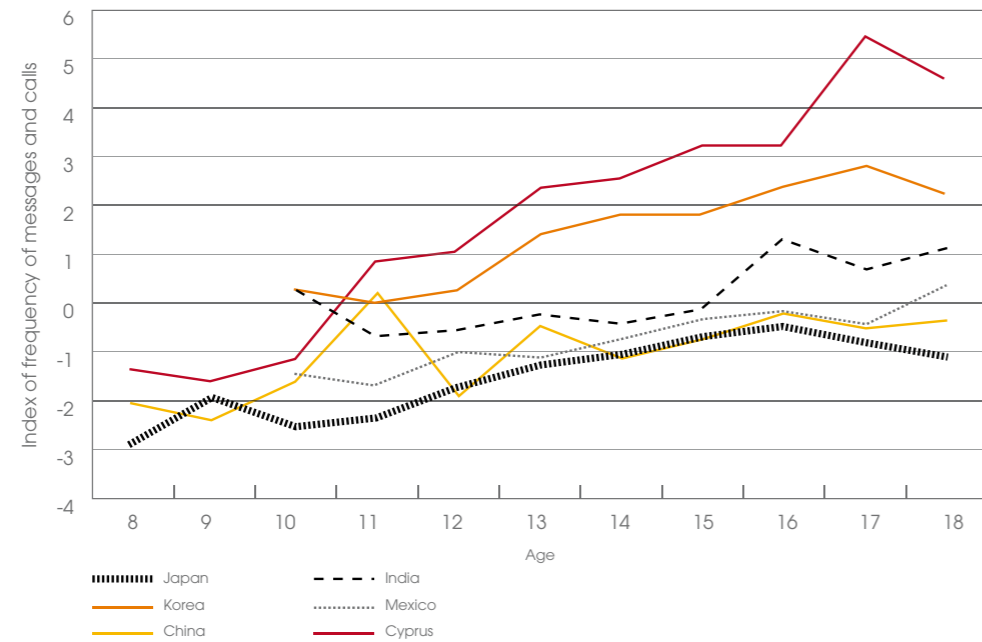


Figure 3-8. Number of messages per day (sent/received)

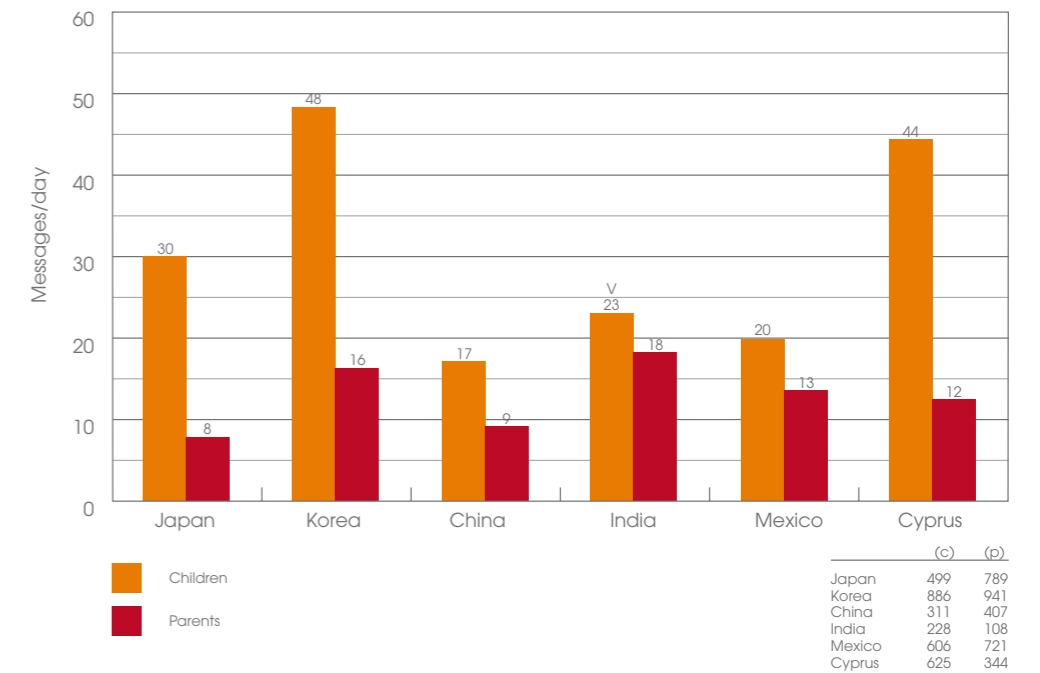
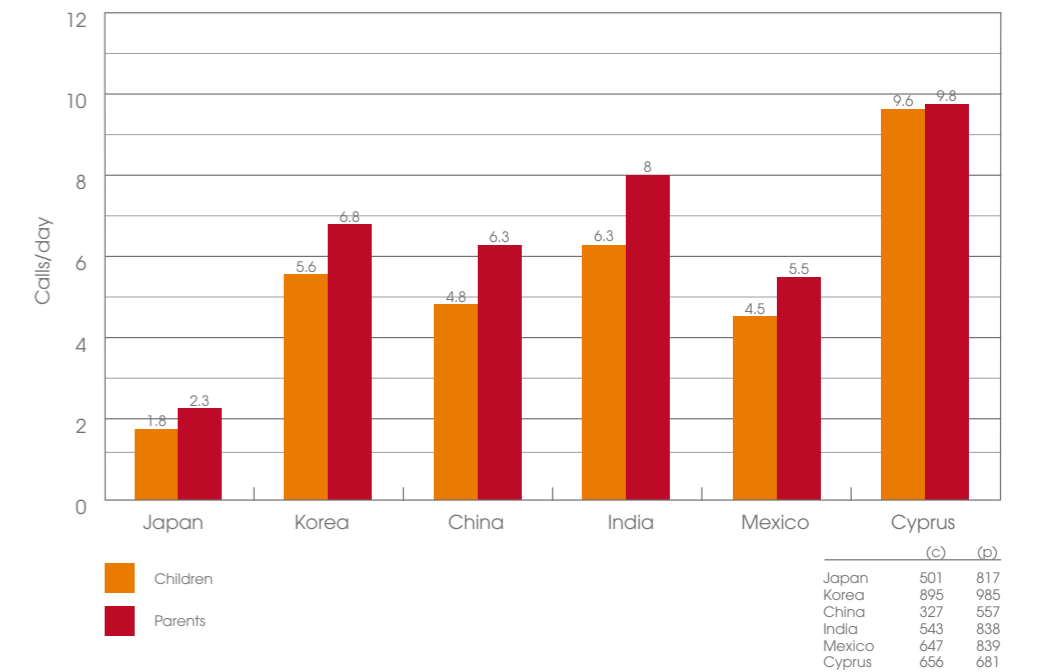


Figure 3-9. Number of calls per day



This becomes clear when a comparison is made with calls. Figure 3-9 shows that the call frequencies of the parents (calls per day) are strikingly similar in numbers to those of the children.

Although there are differences in the numbers of mobile messages for parents and children, the numbers are quite similar for calls. When the correlation coefficient is obtained for all the responses obtained from each country, as seen in Table 3-2 shown later, the coefficient is 0.176 for message frequency, while it is 0.462 for calls, indicating a higher correlation for call frequency.

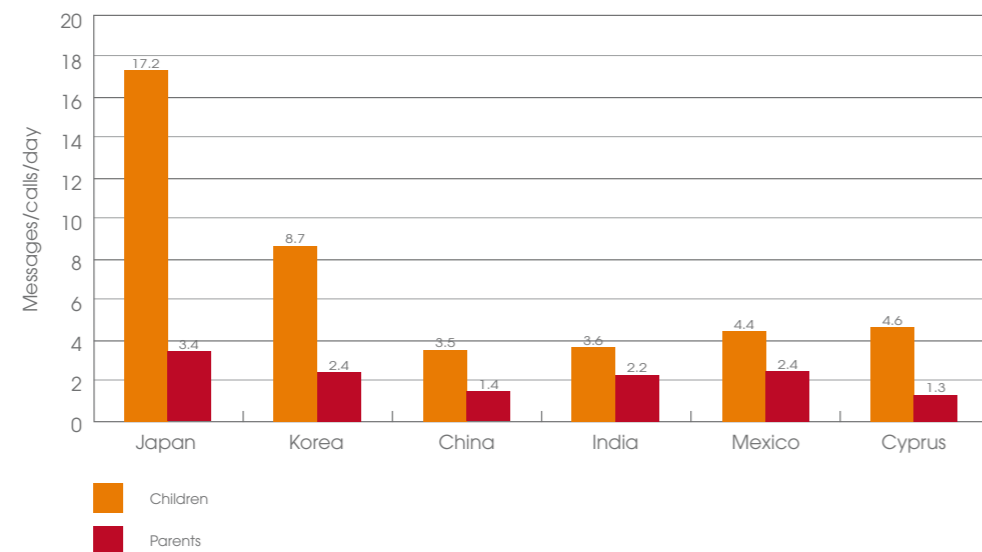
Why do calls have a stronger correlation than mobile messages? There are a number of conceivable explanations. First, there is a difference in the person being communicated with. The explanation is that for the child, the communicating party is mainly their parents, so the call frequency will have a higher correlation with the parents, but messages are used for communicating with friends, and the correlation with parents will not show up as much. Particularly prior to junior high school, it is rare for children to talk frequently by mobile phone with people other than their parents, so for countries where calls are made frequently to parents, the number of calls for both the parents and the children will increase.

For the parents, however, there will be more parties to be called, so this explanation alone is insufficient. The level of visibility is another possible explanation. Since it is easy to observe someone making a call, it is natural for a child to copy the call frequency of a parent. If a child observes a parent making calls freely, the child begins to make calls freely, even for minor reasons, and conversely, if the parent refrains from making calls unless

they are important, the child will believe that this is the way it should be handled, and will refrain from making frequent calls. Cases where children learn this on their own as well as being taught by their parents can be included. With mobile messages, on the other hand, there is no sound and therefore lower visibility. They can be used regardless of the time of day, can be highly secretive, and it is difficult to observe their use by others. As a result, children remain unaware of their parents' message use, and it is difficult for parents to identify the frequency of message use by their children, so there is less likelihood of a correlation between the parent and child.

A comparison was made of the relative frequency of mobile messages and calls between parents and children. Figure 3-10 compares the average number of messages per call across parents and children. As observed previously, it is particularly high in Japan for children, followed by Korea. There are 17.2 messages per call in Japan, 8.7 in Korea, far higher than the three to four for the other countries. Relatively speaking, there is less difference between the parents, however. Parents in Japan use 3.4 messages per call, making them the highest users of messages per call among the six countries, but even in the other countries parents use around two messages per call, and the difference is not great. The 2.4 messages per call in Korea is the same number as in Mexico. So the emphasis on messages rather than calls in Japan and Korea is a phenomenon unique to children.

Figure 3-10. Number of messages/calls per day (message intensity)



9 For text messages, the charge for a message of 100 to 250 characters with no attachments was used. In the chart for calls and text messages, the vertical axis indicates the ratio of the cost of making a one-minute call or sending one text message against the average income (per capita income), and is believed to provide a true representation of the cost as perceived by the user. The number 12 for a call in Japan indicates that to make a one-minute call, it is necessary to pay 12 millionths of the average income. Korea's figure is 5.2, meaning that a call can be made for 5.2 millionths, indicating that calls can be made at a lower cost in comparison to income in Korea than in Japan. The reason why call charges are high in India and China is because, even though the charge itself is low, the per capita income is even lower. The charge ratio of calls and text messages on the far right is the simple ratio itself, and indicates how many text messages can be sent for the cost of a one-minute call. It indicates the relative cost of a call compared to a text message.

As shown above, there are aspects of mobile phone use that cannot be explained by the correlation with the parents. One of the reasons for this could be the difference in the charges. The charges apply equally to both children and adults, but in many cases, because children do not earn their own money, they have an upper limit as to the charges they can incur, and are much more sensitive to charges than their parents. So let us take a look at the charges.

The tariff systems for mobile usage are highly complex and difficult to compare if you include the various discounts available. However, let us take the charge for a one-minute call and the charge for one mobile message as an indication. The significance will differ greatly between two countries with annual per capita incomes of \$30,000 and \$3,000, even if the charge itself is the same, so the charge is divided by the per capita income and a comparison is made of the ratio to income. Figure 3-11 shows the results. From left to right, it shows calls, then messages, and the chart on the far right indicates the ratio of the charges for calls against the charges for messages⁹.

As can be observed from the chart on the far left, call charges are lower in Korea and Cyprus. One of the reasons why call frequency in Cyprus is high, as seen in Figure 3-5, could be the lower cost of calls. On the other hand, looking at the chart in the centre, Japan, Korea and Cyprus have lower mobile message charges, and in fact, message frequency is high in these three countries (Figure 3-4). Finally, looking at the charge comparison for calls and messages, call charges are extremely high compared to message charges in Japan. The tendency of Japanese children to use messages rather than calls, as shown in Figure 3-6, may be explained by the high cost of calls compared to messages. Naturally, there are aspects that cannot be explained, for example the fact that call charges are lower in Japan than in India or China, but call frequency is lower than it is in both these countries, which does not match. There may be other factors aside from the parent-child relationship and charges that determine the frequency of calls and messages.

Figure 3-11.

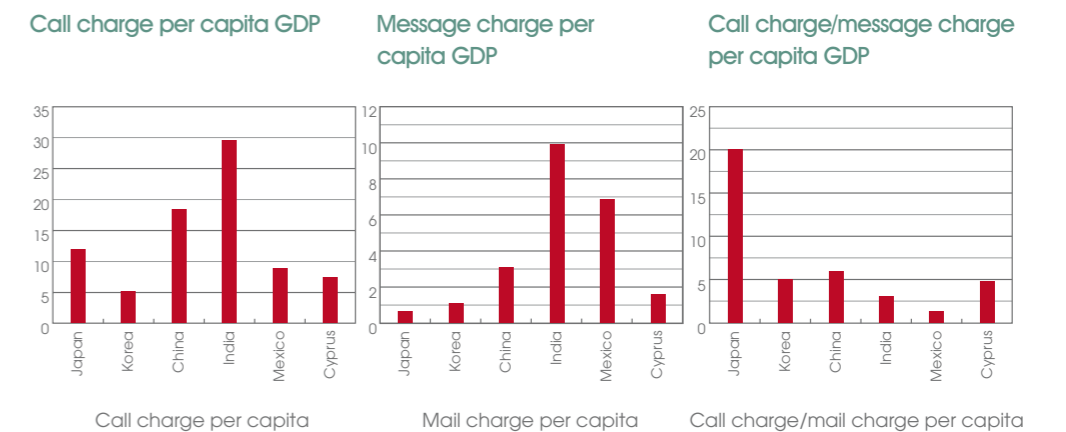
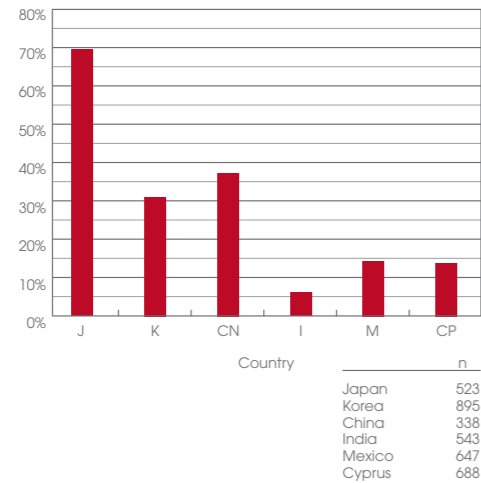
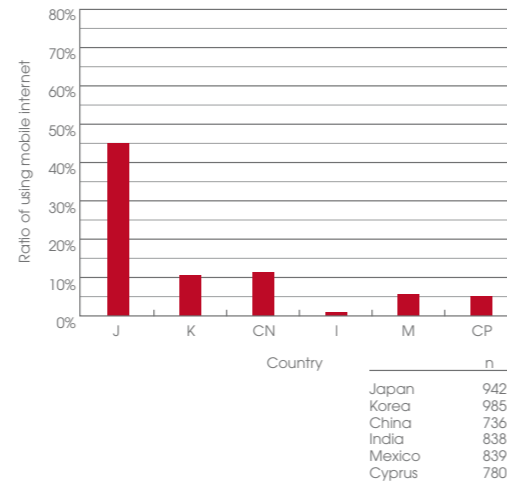


Figure 3-12.

Penetration rate of mobile internet amongst children



Penetration rate of mobile internet amongst parents



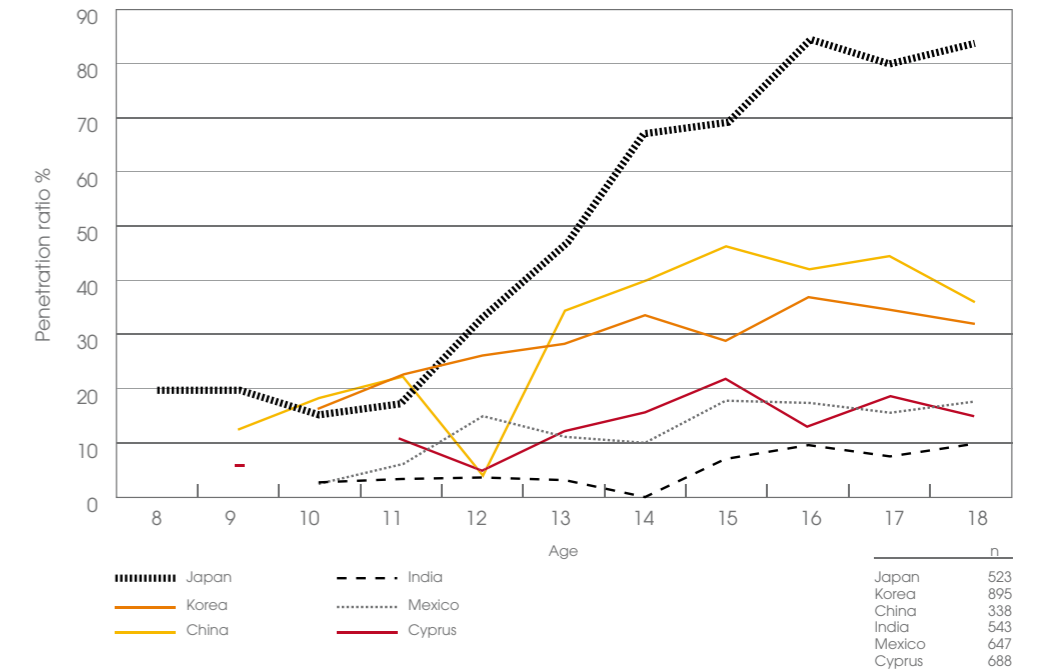
3-3 Internet use

The results regarding internet use on mobile phones are shown in the left-hand chart of Figure 3-12. Japan is far ahead with 69% of child mobile phone owners accessing the internet on their mobile phones. This is followed by China with 37% and Korea with 31%. Mobile internet use in Mexico, Cyprus and India is around 10% and can be considered an exception from the overall point of view. It is probably accurate to conclude that mobile internet use by children takes place predominantly in Japan, China and Korea. The focus in this section will be on these three countries from now on. The right-hand chart in Figure 3-12 shows the mobile internet usage rate of parents. The pattern is similar for children, but the usage rate is lower for parents. Roughly said, the usage rate of parents is about a half to a third of that of the children, and children use the internet more than twice or three times as much as their parents (in these three countries).

When do they start using the mobile internet? Figure 3-13 shows usage by age. In the case of Japan, it shows linear growth from the ages of 12 to 14. Its use spreads from the 6th grade of primary school into junior high, and by the time the children finish junior high, usage reaches around 70%. In Korea and China, there is a gradual increase without a period of rapid escalation.

There are a number of conceivable reasons for the high mobile internet usage in Japan. The cost of internet use is relatively cheap in Japan, and there are many accessible mobile internet sites. As seen in Figure 3-7, the frequencies of mobile messages and calls were almost the lowest for Japan. In other countries, mobile phones are used for communicating with others via calls and messages, but in Japan, they are also used as terminals for internet access.

Figure 3-13. Penetration rate of mobile internet by age



When mobile phones are viewed as mobile internet access terminals, what functions are used by children? We extracted ten functions and asked whether they are used, allowing multiple answers.

- #1. Information on news, weather and transport
- #2. Information on sport, entertainment, movies, hobbies and travel
- #3. Ringtones, screensavers, wallpaper
- #4. Games and music
- #5. Buy product online
- #6. Participate in online auction
- #7. Read messages on social networking sites
- #8. New posts on social networking sites
- #9. Update on social networking sites
- #10. Check web mail

Table 3-1 shows the results, and the figures in the table indicate the percentage of mobile internet users that use the function. Looking at the overall picture, 67% use function #3, (downloading ring tones, wallpapers, screensavers etc) and 52% use games and music, far ahead of the others. Looking at it by country, around 40% to 70% of children have used these kinds of services, and there is little difference between countries.

On the other hand, a significant variance was seen in function #1, the news, and the Bulletin Board Service/Social Networking Services (BBS/SNS) mentioned in #7, #8 and #9. Usage is extremely high for Japan only, with Cyprus following, and in other countries it seems that BBS/SNS are not used. The high rate of mobile internet use by Japanese children appears to be related to these BBS/SNS. Conversely, Cyprus, Mexico and India use a lot of web mail, and the reason why use is low in Japan is because of the difference in the degree of use of PCs. As indicated in a later chapter, there are very few children in Japan who provide their PC e-mail address to new friends, and PC e-mail is not popular among children.

One point to be noted is the low use of BBS/SNS in Korea, where the internet usage rate is among the top countries in the world. Korea is well known as a country with advanced broadband access to the internet, but its main access tool is via PC, not mobile phone.

Table 3-1. Penetration rate of mobile internet by purpose

	Japan	Korea	China	India	Mexico	Cyprus	Total
Information							
(1) Obtain information related to news, weather forecasts and transport.	50	17	29	24	21	9	31
(2) Obtain information related to sports, entertainment, movies, hobbies and travel.	42	22	52	48	38	34	36
Entertainment							
(3) Download ringtones, screensavers and wallpapers	72	89	45	76	40	33	67
(4) Enjoy games, music or videos online or offline after downloading	41	67	63	42	48	44	52
Shopping							
(5) Buy a product online, or make a reservation for tickets or travel services.	9	1	2	0	1	7	5
(6) Participate in online auctions.	3	1	0	0	3	2	2
Communication							
(7) Read messages on BBS, SNS, sites (mixi, GREE, etc.) blogs or profile sites of friends	65	11	27	18	12	45	37
(8) Write messages on BBS, SNS, sites (mixi, GREE, etc.) blogs or profile sites of friends	39	8	9	9	17	26	22
(9) Update messages on your own BBS, SNS, site (mixi, GREE, etc.) blogs or profile sites	36	2	10	6	8	13	18
(10) Checking web email (Hotmail, Gmail, etc.)	6	5	6	18	24	28	10
(11) Others	3	0	34	0	0	2	6

Unit=% ratio of usage amongst mobile phone internet users

	n
Japan	359
Korea	276
China	124
India	33
Mexico	90
Cyprus	95

In the previous year's survey, it was noted that the number of people concerned about children accessing unwanted web sites via mobile phones was low in Korea. The reason given for this was the popularity of education on the use of mobile phones in Korea. As seen in Table 3-1, however, what appears to be a more significant reason could be the lower use of internet BBS/SNS. Conversely, there are more parents in Japan who are concerned about providing their children with mobile phones because access to internet BBS/SNS via mobile phones by children is more popular than it is in other countries, and could be seen as paving the way for children's involvement with inappropriate content, behaviour or crime.

Finally, let us look at the frequency of mobile internet usage. Figure 3-14 shows the average number of uses per week. What is notable is the low use in Korea. It is the lowest of the six countries, with only four uses per week. Considering the fact that the age of mobile phone ownership by children is one of the lowest, and the mobile internet is used fairly widely by 30% of children in Korea, this low rate of use is worth noting. There are many documented cases where children become involved in inappropriate behaviour or

crime through internet BBS/SNS and other web sites. The fact that usage is low in Korea is considered to be the reason why parents in Korea are not particularly concerned about the use of mobile phones by children.

Comparing Japan and Korea, the extreme difference in the usage frequency of the mobile phone internet is believed to be the effect of the spread of the fixed rate charging system. In Japan, fixed rate charging plans for internet data transmission are widespread, and the charges do not go above a certain level, no matter how much is used. In Korea, the fixed rate charging system for data transmission was only introduced in 2009 by some companies, and it is still not particularly widespread. When using the mobile phone internet, the amount of data packets transmitted can mount up without the user being aware of it, resulting in a potentially substantial charge if it is a metered system, which can make it unappealing for children to use. In addition, its use may well be restricted by their parents. A fixed rate system removes such restrictions, thereby leading very rapidly to increased usage.

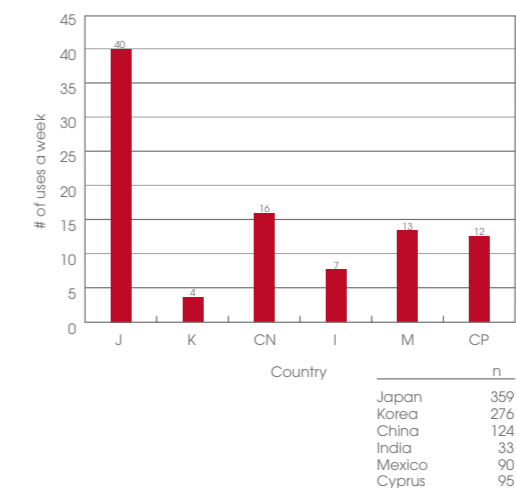
The lower chart in Figure 3-14 shows the frequency of internet usage by parents. Of note here is the low frequency of internet usage by parents in Japan. Japanese parents' frequency of mobile internet usage is similar to that of China, India and Mexico. In terms of whether usage actually occurs (not the frequency of usage) the fact that the percentage of parents that have used the mobile phone internet is below 10% in China, India and Mexico, while it is above 40% in Japan, must be taken into consideration. In China, India and Mexico, only the leading users use the mobile internet, so this could be biased. Even if this has been taken into consideration, however, the internet usage frequency of Japanese parents cannot be said to be high by international standards. It is possible that there is a specific reason for the high internet usage frequency of Japanese children that is not shared with the parents.

3-4 Relationship between usage by parents and children

Children's use of mobile phones is influenced by their parents' use. For example, if parents use mobile messages frequently, then it is likely that their child will use messages frequently. The use of mobile phones has only taken off recently, however, and children may have found unique uses on their own which have no relationship to the degree of use by their parents.

Figure 3-14.

Frequency of mobile internet usage by children: number of uses per week



One often hears stories of parents scolding their children for checking their messages too often, since many parents do not use mobile phones in the same way. So, let us take a look at the correlation between usage by parents and by children. Table 3-2 shows the correlation between parents and children in terms of the usage frequency of messages (logarithmic value of the number of messages sent and received per day), the usage frequency of calls (logarithmic value of number of calls per day), the logarithmic value of the number of addresses stored in the mobile phone, and the usage frequency of the mobile internet (logarithmic value of number of uses per week). The figures shown in parentheses in the table are those that have proven to be insignificant at the 5% level.

As a standard for comparative purposes, the final line shows the parent/child correlation for an index of general trust ("To what extent do you agree with the statement "Almost all people can be trusted"?). General trust is a common question to measure social attitudes in sociology. This is to see whether the correlation regarding mobile phone usage between parents and children is large or not, and to consider how the level of correlation between parents and children may differ based on cultural background. The results can be seen in Figure 3-15 (insignificant data has been deleted).

Frequency of mobile internet usage by parents: number of uses per week

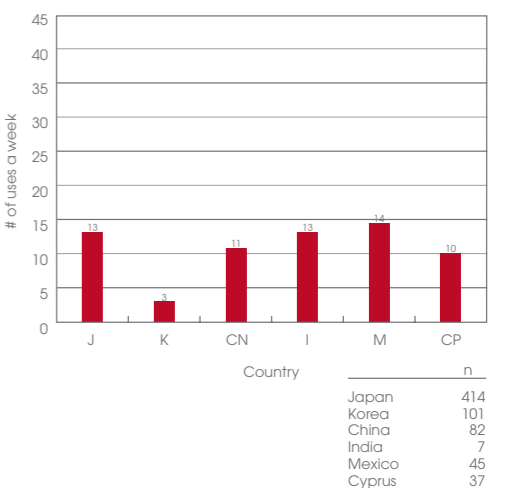


Table 3-2. Correlation coefficients between parents and children

	Japan	Korea	China	India	Mexico	Cyprus	Total
Log of message frequency	0.148*	0.089*	0.231*	0.304*	0.341*	-0.018	0.176*
Log of call frequency	0.244*	0.246*	0.363*	0.250*	0.285*	0.203*	0.462*
Log of number of address	0.118*	0.258*	0.372*	0.164*	0.212*	0.116*	0.201*
Log of internet frequency	0.271*	0.562*	-0.316	-	0.205	-0.086	0.397*
General trust	0.185*	0.302*	0.198*	0.462*	0.212*	0.094*	0.371*

*** significant at 5%
Internet frequency of India is omitted because sample size is too small (n=2)

Figure 3-15. Correlation between parents and children

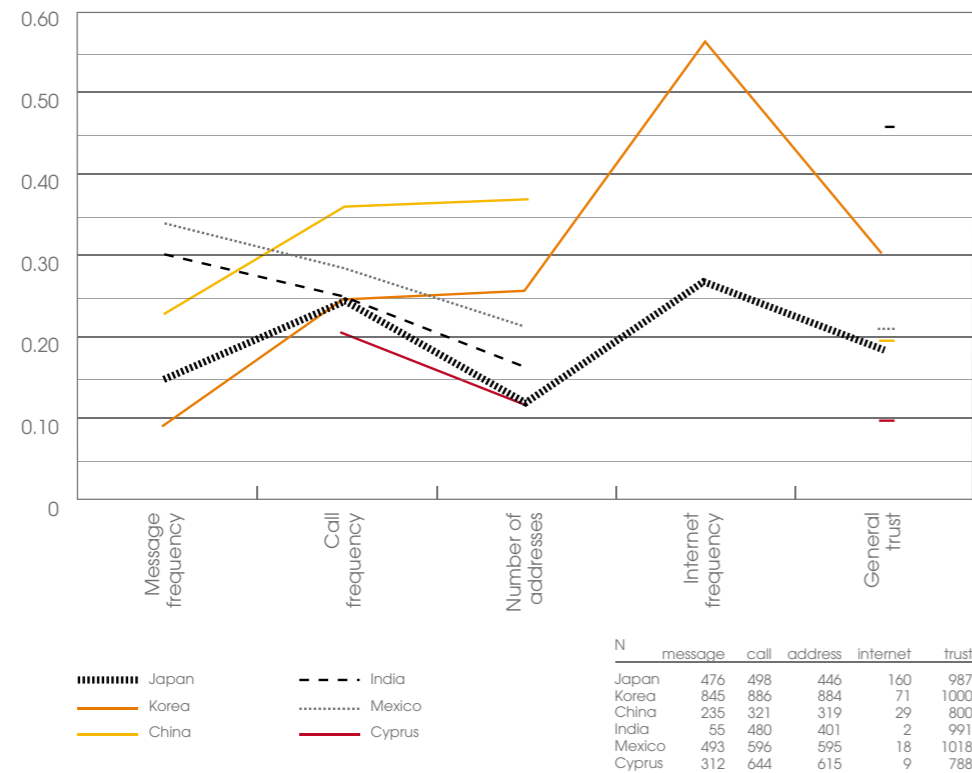


Table 3-2 indicates that the correlations between parents and children are mostly between 0.2 and 0.4. There is no significance in terms of negative correlation, and all significant data shows a positive correlation. Although correlation of mail frequency between parents and children is weak in the country base as shown in Figure 3-8, Table 3-2 and Figure 3-15 show the correlation of mail frequency exists in the individual base. With over 90% of all cases being significant, a positive correlation between parents and children clearly exists. It is not significantly higher or lower than the correlation of general trust. Children's usage frequency of mobile phone correlates with parents' usage frequency as much as the case of general trust.

Looking at the differences for each item, the correlation for calls shows little difference and is greater than 0.2 for all countries. This is consistent with the similarity of call frequency between parents and children in the international comparison made in Figure 3-9. In contrast, internet usage frequency is insignificant for countries other than Japan and Korea, where the user numbers are small, but show a wide difference.

3-5 Necessity and Dependency

We asked the children about the extent to which they consider mobile phones to be a must-have item, and how much they depend on their mobile phones. The following seven questions were asked, and the percentage of those who replied "Agree" or "Somewhat agree" is charted in Figure 3-16.

Convenience

- 1 It is fun to use a mobile phone
- 2 Not having a mobile phone is inconvenient

Psychological dependence

- 3 I feel lonely when I don't receive any voice calls
- 4 I feel lonely when I don't receive any messages (SMS/MMS/email/IM)

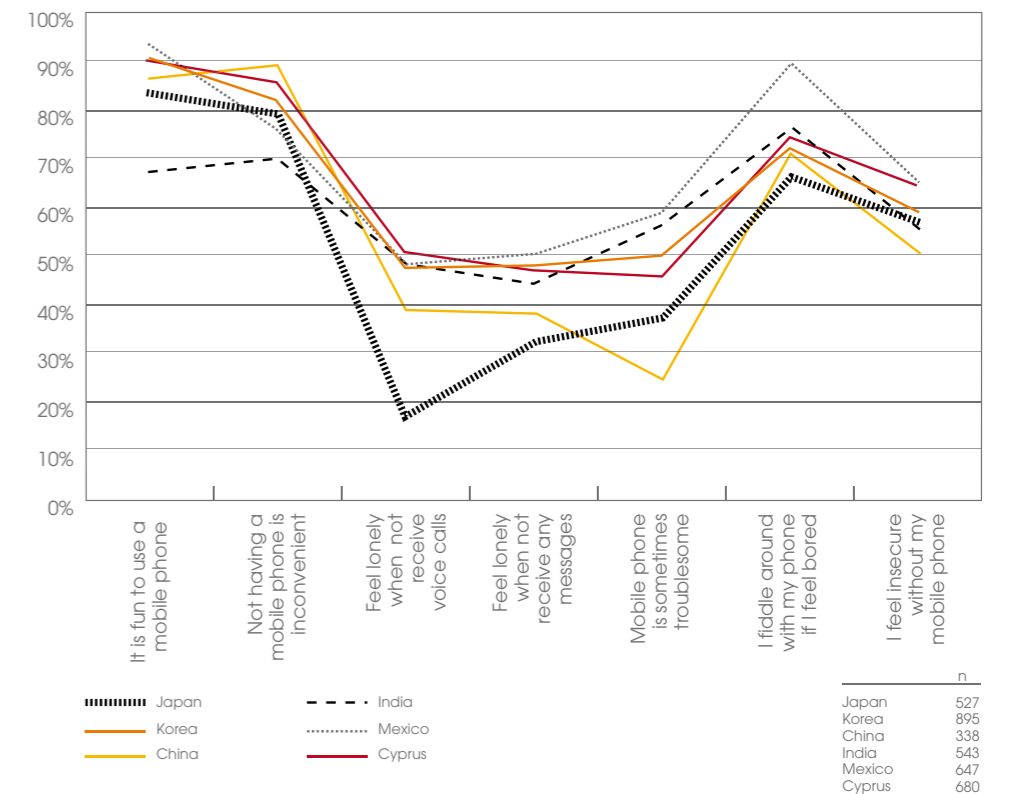
Bother

- 5 Communication by mobile phone is sometimes troublesome

Habit, part of daily life

- 6 I fiddle around with my mobile phone if I feel bored
- 7 I feel insecure without my mobile phone

Figure 3-16. Necessity and dependency on mobile phones



3— Mobile Phone Use by Children

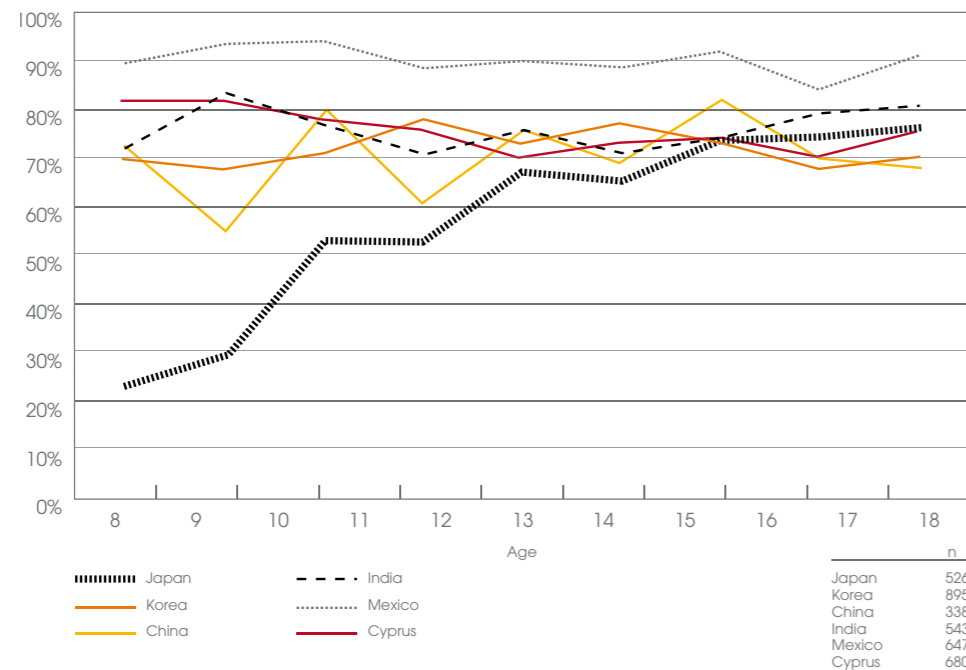
In each country, 80% of children agree with 1 (fun to use) and 2 (convenient). Only India is slightly lower, at 70%. High scores were seen for 6 (fiddle with it when bored) and 7 (feel insecure without it). With the exception of a large number in Mexico who fiddle with their mobiles when bored, the distribution is not particularly significant.

In contrast, the percentage of people who feel 3 (lonely when not receiving calls) and 4 (lonely when not receiving messages) is comparatively low at less than 50%, and its distribution is wide, with only 20% to 30% feeling lonely in Japan, while in China, it remains at around 40%. If feeling lonely is considered to be a sign of dependency, China and Japan are in the non-dependent group among these countries. Japan and China also have a lower percentage of people who consider it troublesome to carry

mobile phones than other countries, and this shows that psychological dependence is weaker than it is in the other countries, resulting in fewer people feeling that it is troublesome.

Looking at it by age, no tendency of increase or decrease with age is observed for all the countries. In Japan alone, however, usefulness and dependency tend to increase with age. Figure 3-17 is an example of this, showing the proportion of people who fiddle with their mobile phone when they are bored. This does not increase with age in other countries, but it does in Japan. The same age effect can be seen in the response to 2 (not having a mobile is inconvenient) and 7 (feel insecure without a mobile phone). We don't have a hypothesis to explain this phenomenon. Why only Japanese children show such an age dependency is an open question needing further research.

Figure 3-17. "I fiddle around with my phone if I feel bored": percentage of 'yes' and 'sometimes'



3-6 Parental concerns and rules

Parental concerns grow as the use of mobiles by children increases. Particularly when mobiles become must-have items for children, the concerns are no longer just an individual issue but become a social problem. The following concerns were listed and parents were asked to respond, with multiple answers permitted.

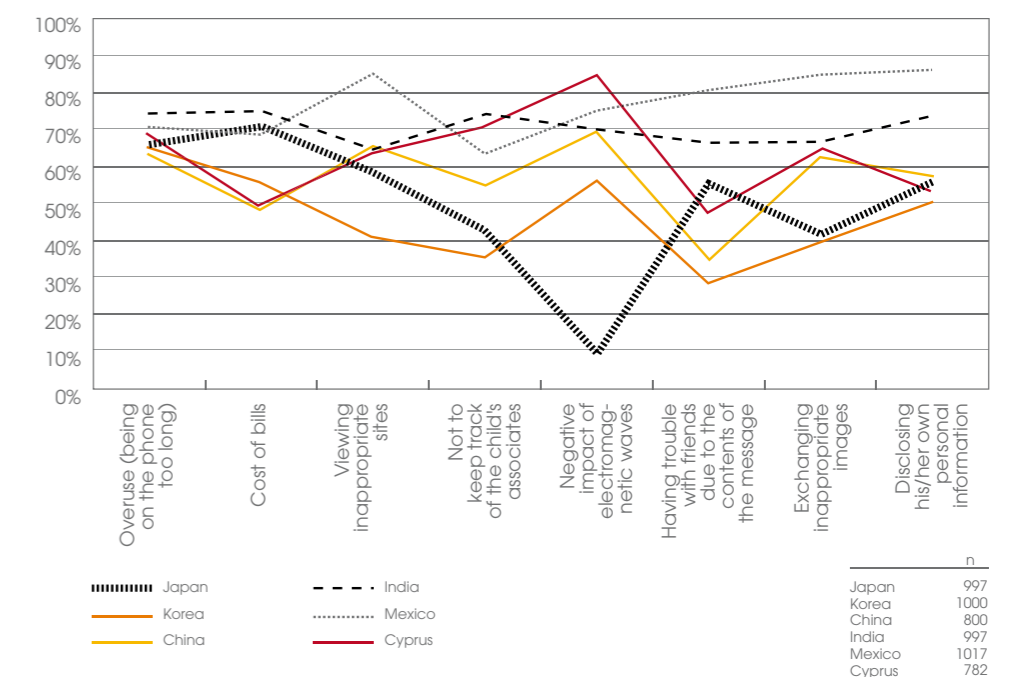
- 1 Overuse (being on the phone too long)
- 2 Cost of the bills
- 3 Viewing inappropriate sites such as dating or sexually explicit sites
- 4 Not being able to keep track of the child's associates
- 5 Negative impact on health due to electromagnetic waves
- 6 Having trouble with friends due to the content of mobile messages or postings on a message board e.g. falling out or bullying
- 7 Exchanging inappropriate images (e.g. sexually explicit photos)
- 8 Disclosing his/her own personal information

The percentage of parents who replied "agree" and "somewhat agree" to these concerns is indicated in Figure 3-18.

This shows that parents in Korea are less concerned than those in other countries. They score the lowest or close to the lowest, with the exception of 5 (negative impact of electromagnetic waves). Conversely, Mexico and India show a higher degree of concern, and rank in the top three for the percentage of people indicating concern regarding all the items. Cyprus, China and Japan occupy the middle group.

When observed item-wise, there is little difference in the average value, and there is no dominant concern. There is a distribution between the countries with regard to the questionnaire items, however. 80% of the parents in all the countries agree that they are concerned about their children being on the phone for too long, but for the other items, the rate of parental concern varies between 50% and 90% and differs widely from country to country. The largest difference can be seen in relation to the issue of negative impact of electromagnetic waves on the body, about which 90% of parents in Cyprus are concerned, but only 40% of parents in Japan.

Figure 3-18. Parents concerned about child's use of mobile phone: percentage of parents who agree or sometimes agree



3— Mobile Phone Use by Children

Several factors should be taken into account regarding the variance between the countries. For example, many parents in Mexico expressed concern regarding access to pornographic and other inappropriate sites as indicated in 3, and these results were about the same for Japan and India. Since access to the internet is far more frequent for children in Japan, however, access to inappropriate sites should actually be much lower for children in India and Mexico. The fact that the concerns of the parents in India and Mexico are equivalent to or greater than in Japan, even under such circumstances, can be interpreted as the fact that the frame of mind for rejecting inappropriate sites is far stronger in the parents from India and Mexico.

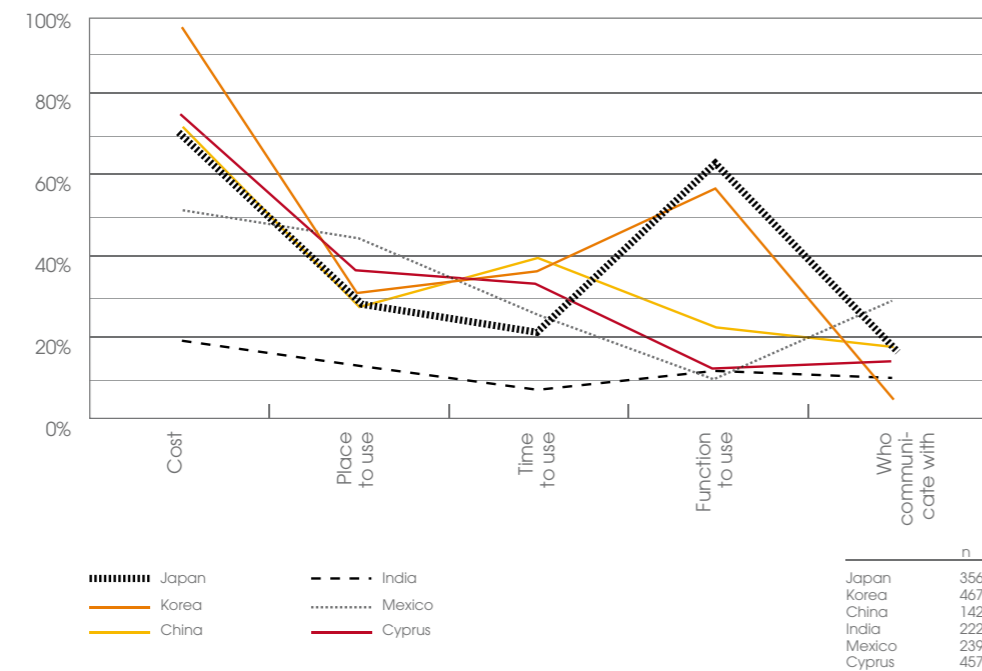
The reason why the number of parents who are concerned about electromagnetic waves in Japan is small is probably because the possible health hazards of electromagnetic waves have not been discussed in the media lately in Japan. Finally, and most important, is the low level of concern of parents in Korea. One of the main reasons is believed to be the low usage frequency of the mobile internet by children. As can be seen in Figure 3-14, the usage frequency of the mobile internet

by children is very low compared with other countries. The low level of concern amongst Korean parents in Figure 3-18 probably stems from the fact that they know their children seldom use the mobile internet.

When there are concerns regarding mobile phone use, rules on the use of the mobile are often established within the family. Figure 3-19 shows the percentages of families adopting certain rules.

From the chart it can be seen that there are very few parents who have established rules in India. Excluding India, a gradual declining pattern can be observed. That is to say that rules regarding cost are the most established, then the place, followed by the time of use, with the rules for the functions to be used and the communicating party being the lowest. For rules concerning the use of functions, however, Japan and Korea are the exception. In Japan, it is believed that more rules have become necessary than in other countries to limit access to sites over the internet, since there are more people connecting to the internet. The popularity of high function mobile phones, like the *osaifu* (wallet) *keitai* also is a reason to establish rules limiting the use of functions.

Figure 3-19. Percentages of families introducing rules for usage of mobile phone



3-7 Summary

This chapter has considered a number of factors regarding children's ownership and use of mobile phones. Mobile phone ownership is high in Cyprus and Korea and in both countries ownership among children is almost 100% at the age of 13, when they enter junior high school. In Japan, ownership soars at the time of entry to high school and reaches 100% at the age of 16. In other countries, the ownership rate rises gradually, reaching 80% to 90% at the age of 18. The age when mobile phone ownership commences was asked to determine the peak age for ownership, which resulted in Cyprus (12), Korea (13 to 14), Japan and Mexico (15), China (15 to 16) and India (16 to 17).

When the parents were asked to give their reasons for providing their children with mobile phones, three reasons, "contact in emergency," "entering new school," and "contact with mother" received the most responses. Although the differences between the countries were small, in China alone, "contact with father," a reason that showed up very little in all the other countries, was cited as an important reason.

The country where calls were most frequently made was Cyprus, with over eight calls per day, significantly more than the other countries. Conversely, Japan had the lowest number of calls, with less than one call per day, which is significantly less than the others. In the other countries, the numbers of calls was between these two, at about four to six calls per day.

Mobile message frequency is high in Cyprus and Korea, followed by Japan. In Cyprus and Korea, upon entry to junior high school, children send and receive around 50 messages per day. Japan follows this with around 30 per day, and there are about 20 messages per day sent in the remaining countries.

As a result, the usage of mobile phones, for both calls and messages combined, is the highest in Cyprus, followed by Korea. The remaining four countries do not vary that much. Dividing the number of messages by the number of calls, i.e. the to call ratio, Japan leads all the others. In Japan, 20 messages are sent for every call, and the communication of children in Japan is centred on messages. Korea's ratio is also quite high, with the number of messages per call at around 10. In the other countries, it is about five messages per call, without any significant differences.

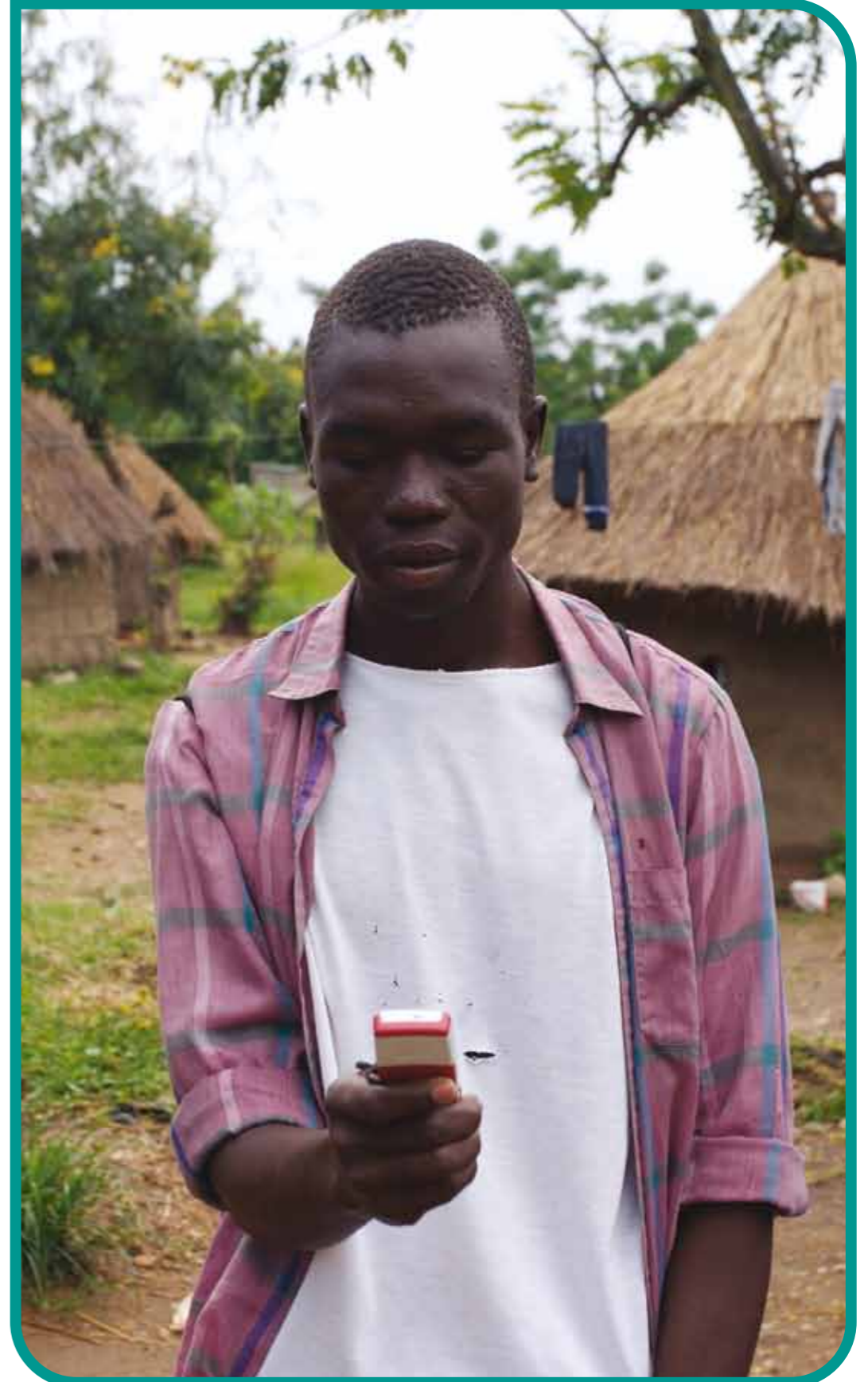
Comparing the usage frequency of the parents, there are similarities with the parents in terms of calls, but differences in terms of messages. In countries where parents make a lot of calls, children also tend to make a lot of calls, but there is no correlation for messages. A lot of messages are sent in Cyprus, Korea and Japan, but parents in these three countries do not use messages more frequently than other countries, and children in these three countries use messages often, not because they take after their parents, but because it is a characteristic created by the children's generation.

Some of the differences between the countries may be explained by the difference in payment plans. One of the major reasons why the use of messages is believed to be popular in Japan is because message charges are far less expensive than call charges.

Regarding the use of the mobile phone internet, Japan, Korea and China use it, and its use is limited in other countries. When the usage frequency is compared, Japan is in the lead by a long way. The number of times the mobile phone internet is used each week is only about five to 15 times in other countries, but over 40 times in Japan. It is the habit of Japanese children to use it for communication, such as BBS/SNS, and this is believed to result in the increased frequency of use.

In all countries, children consider their mobile phones to be indispensable. The percentage of children who replied that it would be inconvenient if they did not have a mobile phone was about 70% to 90%, and about the same percentage of children replied that they play with their mobile phones when they have nothing else to do. When asked about psychological dependency, and whether they feel lonely when they don't talk or receive messages, around 30% to 50% replied that they do feel lonely. When the use of mobile phones by children increases, so do the concerns of the parents. When eight parental concerns were listed (overuse, not being able to see who they are spending time with, ill effects of electromagnetic waves, browsing inappropriate web sites, and others), the majority of parents indicated that these were all items of concern, revealing that there is a high level of parental concern.

Looking at it by country, Korea had fewer parents who were concerned, while concern was high for Mexico and India. By item, overuse was a concern in all countries, but there were variances for other items. The largest variance was in terms of concern about the negative impact of electromagnetic waves on health, about which less than 40% of the parents in Japan were concerned, while 70% to 90% of the parents in other countries expressed their concern. Many parents do impose rules regarding mobile phone use to allay their concerns. However, India is an exception, and very few parents there actually impose any rules. One reason for this may be that in India, many mobile phones are shared (70% of child mobile phone owners share their phone with others.) The most popular rule imposed is setting a maximum monetary limit on use, followed by the location of use, and the time when it may be used. In Japan and Korea, rules limiting the functions that can be used are imposed, and this is because of the widespread use of high functionality handsets.



4—
Mobile Phones
and the Parent-
Child Relationship



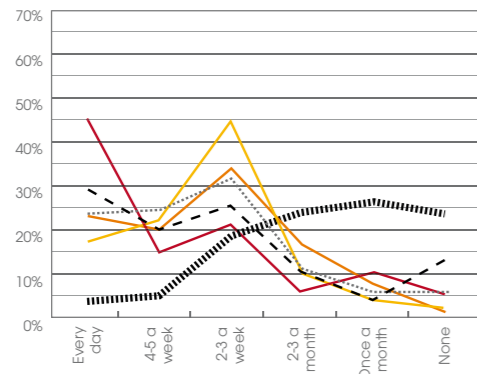
4 Mobile Phones and the Parent-Child Relationship

The parent-child relationship is the most basic personal relationship for children, and mobile communication, now a part of daily life, will naturally be used in communication between parents and children.

While understanding between parents and children may be furthered by frequent communications using mobile phones, some people suggest that the parent-child relationship will become diluted, since it does not involve face-to-face communication. What exactly is the actual situation regarding mobile communication between parents and children? Does it have any influence on the parent-child relationship? In this chapter, we will consider the actual state of mobile communication between parents and children, along with its effects.

Figure 4-1. Frequency of calls with parents

Frequency of calls with father

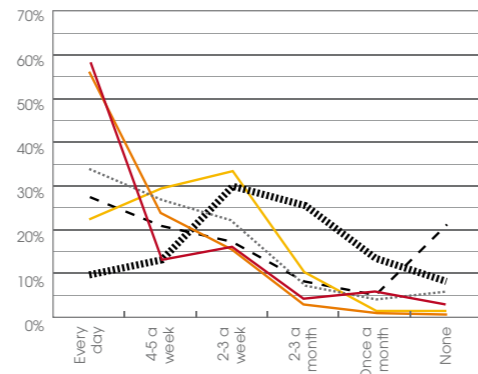


Japan	India
Korea	Mexico
China	Cyprus

4-1 Mobile and parent-child communications

Let us look at the frequency of parent-child communications by mobile. Figure 4-1 shows the distribution of call frequency. On the left is communication with the father, and on the right is communication with the mother. The horizontal axis indicates the communication frequency, and the vertical axis indicates the communication frequency of the children. The extreme left indicates that communication takes place every day, and this decreases as it moves to the right, with the extreme right indicating that no communication takes place.

Frequency of calls with mother



	n		n
Japan	487	Japan	507
Korea	874	Korea	886
China	315	China	318
India	226	India	225
Mexico	601	Mexico	606
Cyprus	637	Cyprus	647

Calls to fathers are particularly frequent in Cyprus, and 45% of children responded that they call their fathers every day. This result is very low in Japan, with less than 5% of children calling their fathers every day. In the case of Japan, 70% of children call their fathers fewer than two to three times a month, and the call frequency is low compared to other countries. In countries other than Cyprus and Japan, it is most common for children to call their fathers two to three times a week. For calls to the mothers, the average number is greater. In Cyprus, Korea, India and Mexico, calling their mothers every day has the most responses, and conversations with their mothers are very frequent. Particularly for Korea and Cyprus, 60% of children talk with their mothers every day. In Japan, those talking to their mothers every day remain by far the lowest, at 10%.

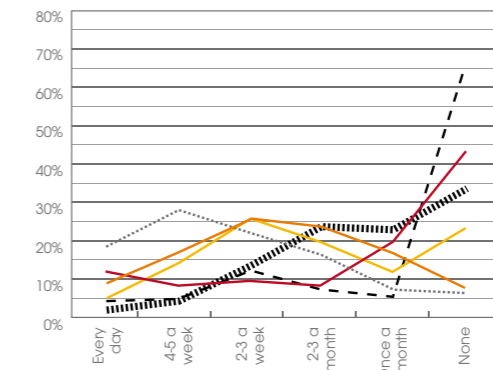
Figure 4-2 shows the distribution of message frequency. India is an exception where 60% to 70% of children do not send mobile messages to their fathers or mothers at all,

which is by far the highest. In India, many mobiles are shared (70% of child mobile phone owners share their phone with others), which may account for some of the result, but this is far too high, and there must be some other explanation.

Another point to be noted is that in Korea and Cyprus, the frequency of messages sent to the father and mother is the same as for the other countries. These two countries had indicated that message usage frequency was much higher than in the remaining countries, as seen in Figure 3-8. However, the frequency of sending messages to the father or mother is the same as for the other countries. Particularly in the case of Cyprus, 30% to 40% of children do not send messages to either their fathers or mothers, and the difference is clear. It can be assumed that segregation has taken place, with calls made within the family and messages used for friends and others outside the family.

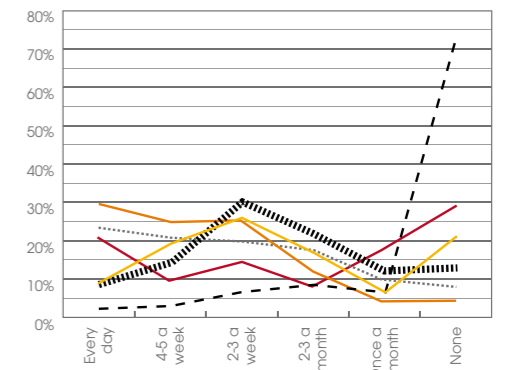
Figure 4-2. Frequency of messages with parents

Frequency of messages with father



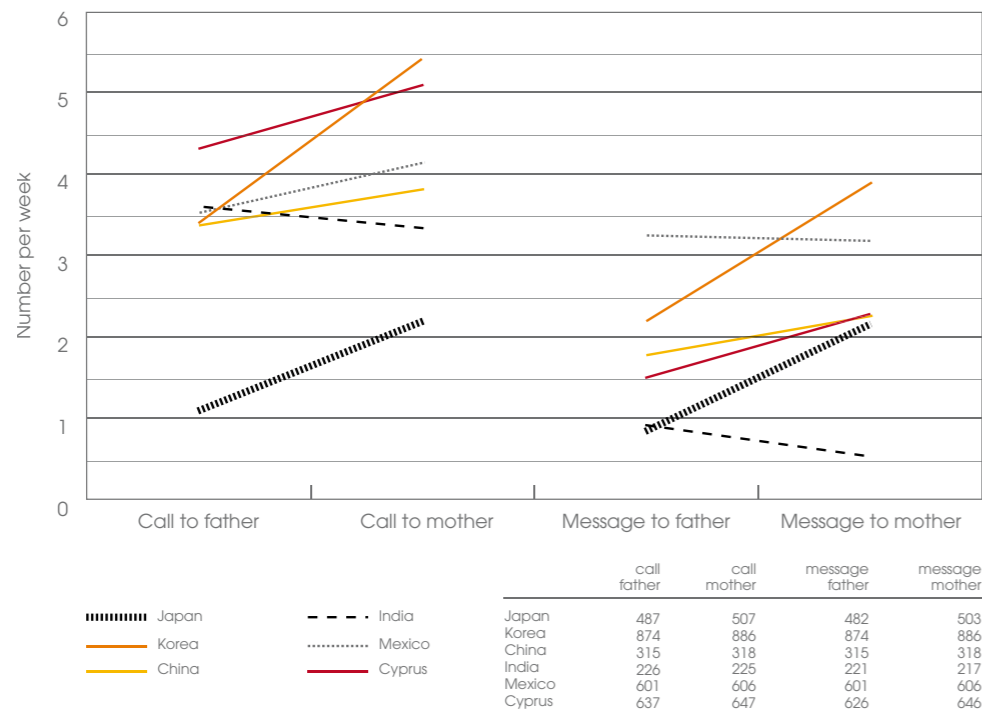
Japan	India
Korea	Mexico
China	Cyprus

Frequency of messages with mother



	n
Japan	503
Korea	886
China	318
India	217
Mexico	606
Cyprus	646

Figure 4-3. Call and message frequency with parents



When comparing the father and mother, in Japan and Korea the distribution shifts towards the mother, indicating that communications are more frequent with the mother.

The values are difficult to read from this chart, however, so they have been converted to an average value, and this is indicated in Figure 4-3. The vertical axis indicates the frequency per week, the two plots to the left are the number of calls per week, and the two to the right are the number of mobile messages per week. The lines connect the instances of calls and messages to the father to those to the mother.

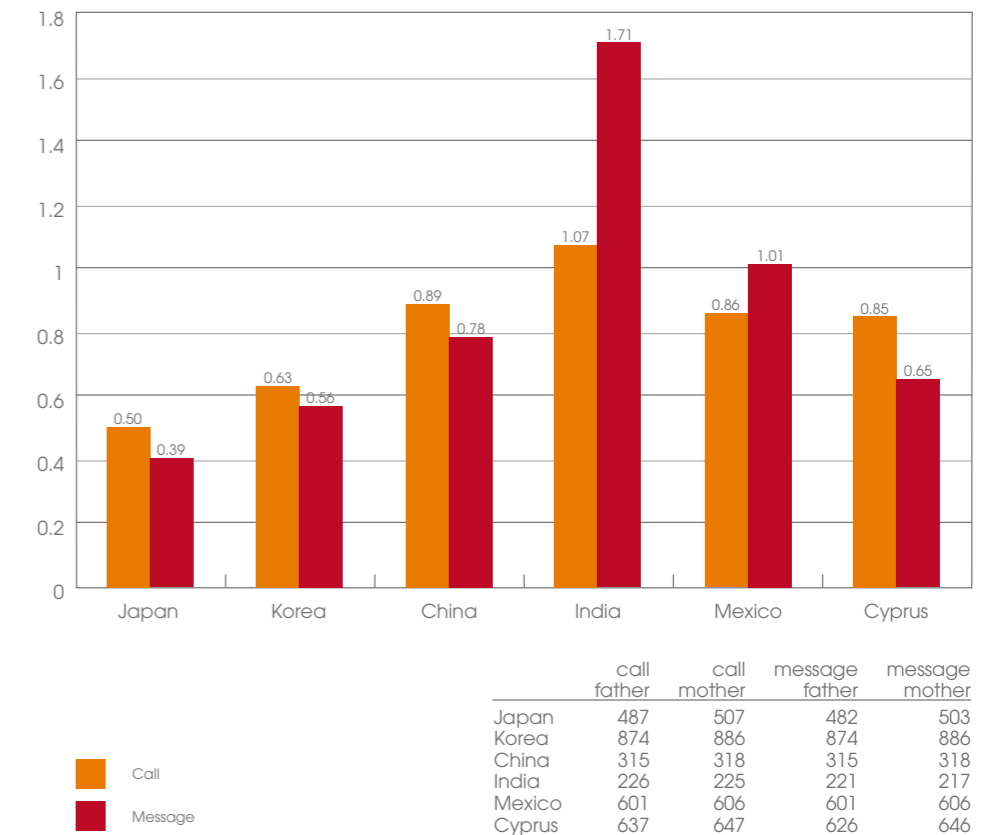
As expected, in almost all cases, the plot shows higher scores to the right, indicating the higher frequency of both calls and messages sent to the mother. The children's communication partner is centred on the mother. However, India indicates a higher communication frequency with the father, which is worth noting. Whether this is for cultural reasons unique to India or because there are more shared mobiles or other factors cannot be assessed from the survey at this time.

To understand the difference between the father and the mother more clearly, the frequency of calls and messages to the father was divided by the frequency of calls and messages to the mother, and the quotient was obtained. Figure 4-4 shows the results. With the exception of India, both calls and messages are below one, indicating that the frequency with the father is lower. Looking at it by country, Mexico and China are above 0.8, and the difference between the father and the mother is not great, followed by Cyprus, Korea and Japan, with the difference between the father and mother increasing. The frequency of calls and messages sent to the father in Japan, where the difference is the largest, remains at half the frequency of those sent to the mother. As seen from the results, there is a difference between the countries in terms of whether communications are conducted with the father and the mother equally or are more focused on the mother.

10 In Figure 3-6, text messages are counted by the numbers sent and received, and Figure 4-3 shows the number of communications by text message, so they do not match. In Figure 3-6, however, the total use shows that text messages are used more than five times more frequently than calls, and in Figure 4-3, the number of communications with the parent by text message is only about 70% of the number of communications made by calling. In simple terms, it will not balance out unless seven text messages are sent for one communication (5/0.7 = 7) with the parent. This is far too large to be realistic.

11 Total numbers of text messages are more than five times than calls. The number of communications with parents is about 0.7 times, so put simply, unless 7 text messages are sent and received during a communication with the parent (5 / 0.7 = 7), it will not balance out.

Figure 4-4. Frequency of communication with father/mother

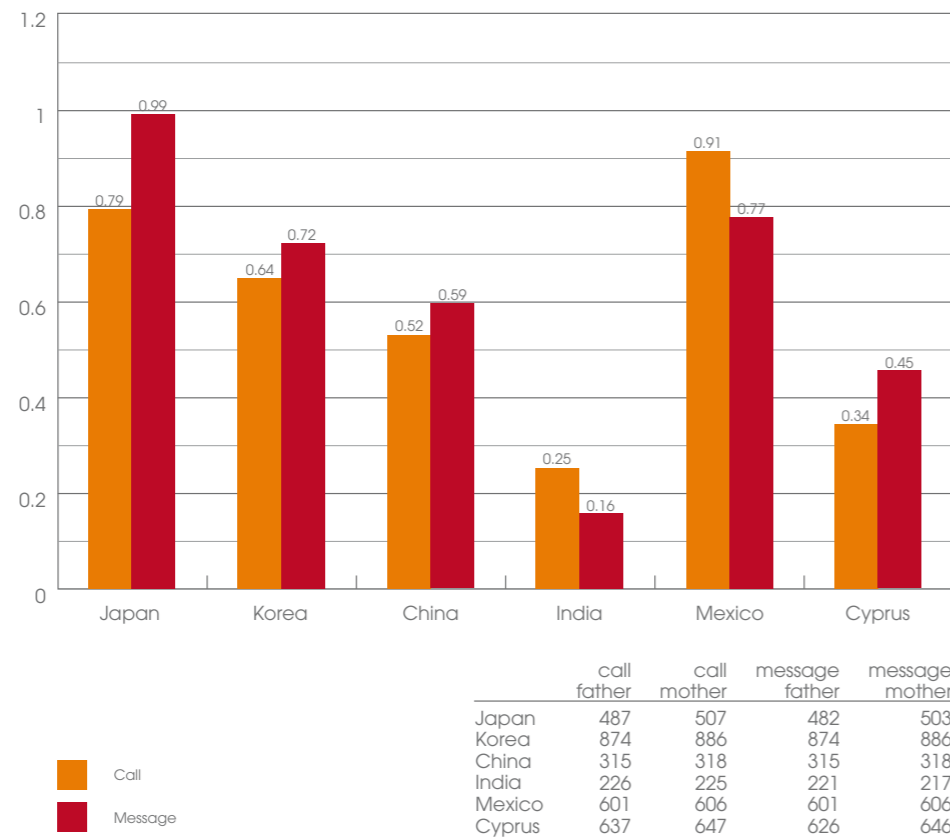


Another point to be noted is that communications with the father and/or mother are made up of more calls than messages. Figure 4-5 shows the result of dividing the number of communications by message provided in Figure 4-3 by the number of communications made by call, and indicates which method was adopted for communicating with the father or the mother. The ratio is lower than one for all the countries, indicating that there are more calls made than messages sent. This is even though there are far more messages being sent and received than calls being made, with the number of messages sent and received being about five times greater than the number of calls made on the whole, as seen in Figure 3-6.

In the case of messages, however, a single communication may involve a number of dispatches and receipts, so a direct comparison is not possible, but the possibility of making calls rather than sending messages for communications with the father or mother is high¹⁰. (Note that frequency of Figure 4-5 is measured by the number of communications, not by number of messages and calls)¹¹.

By country, children in Japan and Mexico frequently use messages to communicate with their parents. Conversely, there is almost no usage in India, followed by Cyprus. Cyprus has the highest frequency of message use, but this confirms that communications with parents are made by calls.

Figure 4-5. Communication frequency: message/call ratio



The method and frequency of communication affect the parent-child relationship in various ways. For example, face-to-face communication at dinnertime is often quoted as a necessary element for bringing up children soundly. The recent rapid penetration of mobile phones may affect the parent-child relationship. Mobile communication may reinforce the relationship because of frequent communication among families, or it may weaken the relationship because of increased communication with people outside the family.

Many indices can be conceived regarding the parent-child relationship, but let us start with whether children trust their parents. Trust is an important element in the parent-child relationship, and relationships may not be

stable if trust does not exist. Four possible responses were available in answer to the question "I trust my father more than anyone else" and "I trust my mother more than anyone else": "agree," "somewhat agree," "somewhat disagree," and "disagree." Let us look at the correlation with mobile phone use.

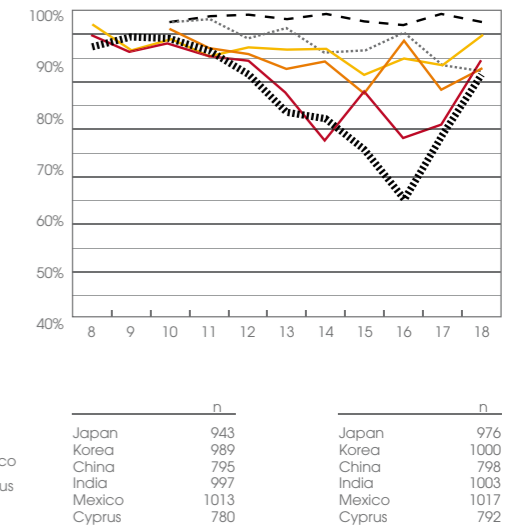
Before we do so, we will indicate the difference in trust by country and by age. It was expected that the response to this question would be greatly influenced by age. Figure 4-6 indicates the transition in the percentage of children who responded positively, with "agree" or "somewhat agree," to the question of whether they trusted their father or mother the most by age.

Figure 4-6. Trust in parents

Trust in father: percentage of children who trust their father more than anyone else



Trust in mother: percentage of children who trust their mother more than anyone else



Comparing the graphs on the left and right, the graph on the right has a higher level in all the countries; the value for the mother is greater than for the father, indicating that trust is higher in the mother. Looking at it in terms of country, it is highest for India, with Mexico only slightly behind. China and Korea show similar levels, and Japan and Cyprus score the lowest. Age-wise, it decreases with age, as expected. There are variances between the countries, however. In India, there is almost no drop, while in Mexico, China and Korea, the fall is gradual. Japan and Cyprus decrease significantly, and at the age of 16, the trust in the parents falls to around 60% to 70%. It hits the bottom here, however, and begins to pick up again. The return of trust in the parent around the time of graduation from high school is probably because children are able to reasonably evaluate their relationship with their parents as they become adults.

Is there any correlation between the trust and mobile communication? Since age affects the results for general trust, a correlation controlling the effects of age is desirable, and a partial correlation controlling age is calculated. As a measurement of mobile usage, mobile phone ownership, the frequency of calls made to the father and the mother, and the frequency of mobile messages sent to the father and the mother were recorded, and the frequency of face-to-face conversations with the father and the mother was also recorded for comparative purposes. Table 4-1 shows the result.



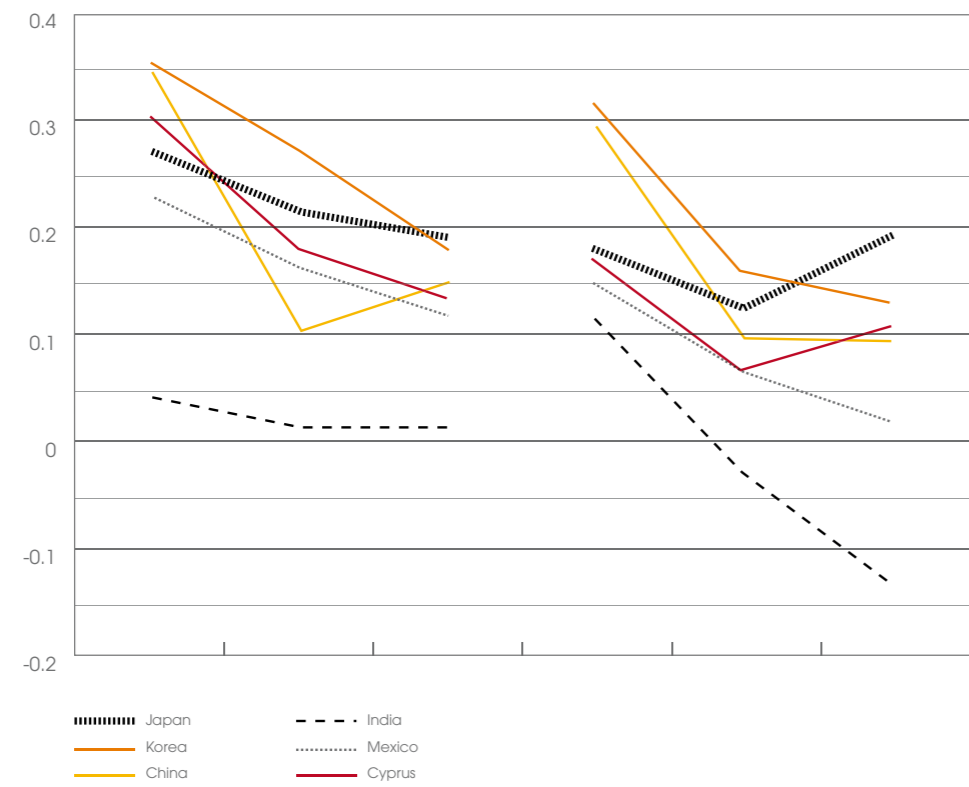
4— Mobile Phones and the Parent-Child Relationship

Table 4-1. Partial correlation between mobile communication and trust in parents

	Japan	Korea	China	India	Mexico	Cyprus
Have mobile phone and trust in father	0.056	0.052	0.022	0.041	-0.015	0.089
Have mobile phone and trust in mother	0.018	-0.010	0.021	0.011	-0.003	0.053
Face to face talk and trust in father	0.274*	0.358*	0.350*	0.042*	0.231*	0.303*
Face to face talk and trust in mother	0.180*	0.318*	0.300*	0.114*	0.149*	0.169*
Call frequency and trust in father	0.219*	0.275*	0.105	0.011	0.164*	0.180*
Call frequency and trust in mother	0.127*	0.159*	0.098	-0.031	0.065	0.062
Message frequency and trust in father	0.192*	0.180*	0.150*	0.010	0.118*	0.131*
Message frequency and trust in mother	0.194*	0.129*	0.095	-0.139*	0.017	0.106*

* Significant at 5%

Figure 4-7. Partial correlation between mobile communication frequency and trust in parents



n	Japan	Korea	China	India	Mexico	Cyprus
Face to face talk and trust in father	938	989	795	994	1013	779
Call frequency and trust in father	481	874	315	225	601	635
Message frequency and trust in father	474	875	313	216	601	629
Face to face talk and trust in mother	921	989	793	997	1013	774
Call frequency and trust in mother	476	874	313	225	601	631
Message frequency and trust in mother	498	886	318	216	606	634

First, no correlation was found between mobile ownership and trust. Concerns that owning a mobile would divert children's communication outside the family, negatively affect trust and weaken family relationships have no grounds.

As no correlation with mobile ownership has been shown, this factor has been excluded, and the changes in correlation coefficient have been charted in Figure 4-7. The three plots to the left show the correlation coefficient of trust in the father with face-to-face conversation frequency, call frequency and message frequency, and the three to the right show the same results for the mother.

India is in an exceptional position. The correlation between mobile message frequency and the mother for India is negative, and the results indicate that children who send frequent messages to their mothers do not trust them. In addition to this, there are only a few items for India that are significant, and no correlation of communication frequency could be detected for trust in the father. To begin with, trust in parents in India was the highest of the six countries, and it is suspected that children with low levels of trust in their parents would be in an extremely atypical situation.

If India is excluded, the patterns of the five remaining countries are quite similar. In comparison, in the correlation of communication frequency, trust in the father is greater than in the mother. Considering the fact that trust in the mother is greater, one theory would be that by maintaining strong communications with the children, there is more room for the father to strengthen a relationship of trust whose level was originally low.

The correlation decreases from face-to-face conversation, to calls, to messages, and indicates the strong influence of face-to-face conversation. Although the correlation is lower, however, there is a positive correlation between calls and messages and trust. The frequent exchange of messages does not mean that the parent-child relationship is diluted. The possibility of a lack of face-to-face communications resulting in the exchange of messages is not dominant. It may exist, but it is limited, and in general, the frequent exchange of messages has a positive correlation with the relationship of trust between the parents and the children. Particularly in the case of the mother, the correlation coefficients for both calls and messages are almost equal, which can be interpreted as meaning that the strength of the trust relationship with the mother is established equally through messages and calls.

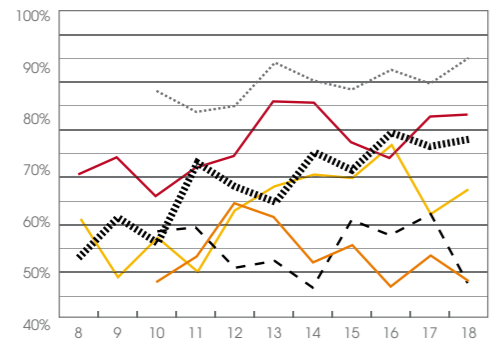
4-3 Mobile communications and parent-child heterogeneity tolerance

Heterogeneity tolerance is taken as another indication of the parent-child relationship. Heterogeneity is how much one is able to tolerate different views and ideas, and is an indication of the maturity of the parent-child relationship. The children were asked to provide responses in four stages, and Figure 4-8 shows the percentage of those that replied "No problem to have a different opinion" or "Not a major problem to have a different opinion", when asked how they felt about having different opinions from their fathers and mothers, by country and by age.

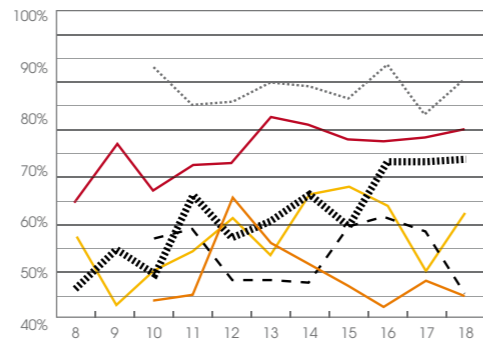
The most tolerant was Mexico, where 80% of children were positive about having different opinions from their parents. This was followed by Cyprus, whose tolerance gradually increases from 70% to 80% with age. Japan and China follow, and in Korea and India, the ratio of children who wish for an agreement of opinion and those that consider differences of opinion to be good is split half and half. Looking at the age effect, some countries show an upward slope, with tolerance tending to increase with age. This is evident for Cyprus and Japan. In Japan, where only 50% of children were agreeable to having a different opinion at the age of eight, the percentage rises to 70% by the age of 18. In Cyprus, this increases very gradually from 70% to 80%. In Mexico, a slow increase can be observed for the fathers. For the remaining countries, however, the fluctuations are too great to distinguish a clear trend.

Figure 4-8. Tolerance to different opinions:

Father – percentage of children who have no problem with different opinions



Mother – percentage of children who have no problem with different opinions



Legend for Father graph:
 Japan: Dotted line
 Korea: Solid orange line
 China: Solid yellow line

Legend for Mother graph:
 India: Dashed black line
 Mexico: Dotted black line
 Cyprus: Solid red line

	n		n
Japan	982	Japan	986
Korea	1000	Korea	1000
China	800	China	800
India	1004	India	1004
Mexico	1018	Mexico	1018
Cyprus	788	Cyprus	796

Table 4-2. Partial correlation between mobile communication and opinion tolerance to parents (age is controlled).

	Japan	Korea	China	India	Mexico	Cyprus
Have mobile phone and opinion tolerance to father	0.016	0.021	0.017	0.034	0.018	-0.101*
Have mobile phone and opinion tolerance to mother	0.022	-0.011	0.026	0.016	0.016	-0.094*
Face to face talk and opinion tolerance to father	-0.047	0.148*	-0.021	-0.025	0.093	0.050
Face to face talk and opinion tolerance to mother	-0.049	0.071*	-0.015	-0.021	-0.015	0.006
Call frequency and opinion tolerance to father	-0.069	0.001	0.008	-0.049	-0.036	0.003
Call frequency and opinion tolerance to mother	-0.118*	-0.024	-0.050	-0.083	-0.058	-0.079*
Message frequency and opinion tolerance to father	-0.028	0.000	0.024	-0.109	-0.026	0.017
Message frequency and opinion tolerance to mother	-0.066	-0.043	-0.009	0.039	-0.050	-0.008

Parenthesis means not significant at 5%

n	Japan	Korea	China	India	Mexico	Cyprus
Have mobile phone and opinion tolerance to father	982	1000	800	1004	1018	788
Have mobile phone and opinion tolerance to mother	986	1000	800	1004	1018	796
Face to face talk and opinion tolerance to father	932	989	795	998	1014	778
Face to face talk and opinion tolerance to mother	972	1000	798	1004	1017	793
Call frequency and opinion tolerance to father	482	874	315	226	601	636
Call frequency and opinion tolerance to mother	503	886	318	225	606	646
Message frequency and opinion tolerance to father	477	874	315	221	601	625
Message frequency and opinion tolerance to mother	499	886	318	217	606	645

The partial correlation coefficient was computed with the frequency of mobile phone use, with age-controlled. Variables were assumed in the same manner as Table 4-1 and the correlation was obtained against each for mobile phone ownership,

face-to-face communication, calls, and mobile messages. As communications with the parent become more frequent, the possibility of becoming increasingly generous to heterogeneity exists with the progress in

mutual understanding. There is, however, also the possibility of going in the other direction, toward a stronger homogeneity, with an increased sense of solidarity. Table 4-2 indicates the results of the calculation. The correlation is considered to show the position of increased generosity towards heterogeneity as communication frequency increases, when the correlation coefficient is positive.

As can be seen, almost no significance can be observed. Looking at the signs, the positives and negatives are intermingled, and are not stable. The only item that may possibly be stable is the negative correlation of call frequency with the mother. This is negative in all the countries, and is significant in Japan and Cyprus. In the case of the mother, when the frequency of calls is high, the tendency to seek consent will increase. In all other cases, the signs are unstable and cannot be said to be significant, so it is safe to say that there are no strong relationships between the use of mobile phones and trust in the parents.

Looking at communication between the parent and the child, the biggest feature is that calls occur far more frequently than mobile messages. This is in contrast to the overwhelming share of messages in communications with friends, and voice calls are the main method of communication between the parent and the child. This is particularly high in the case of India, where the frequency of messages sent to the parents is only about one-fifth of the frequency of calls, a striking difference of approximately four-fifths of that of the other countries. In India, in fact, the percentage of children who do not message their parents is around 70%, far greater than any other country. In India, it is highly unusual for children to message their parents, but it is quite normal in other countries.

When the father and mother are compared, with the exception of India, the number of communications with the mother is greater. In India alone, the communication frequencies with the father and the mother are almost equal. In contrast, the difference is substantial for Japan and Korea, where communication with the father is down to about half of the frequency of calls and messages to the mother. The partner for

children's calls and messages is not the father, but the mother. On the whole, in the comparison of communication frequency, the low frequency of calls made by Japanese children is notable. Japanese children make the least number of calls of all the six countries, both in terms of total number of calls and calls with their friends, and this shows up in the communications with their parents.

In studying the relationship between the frequency of mobile communications and trust toward the parents, the ownership of mobile phones has almost no bearing on the level of trust toward the parents. However, there is a positive correlation between the frequency of communication with the parents and the degree of trust. This means that be it calls or messages (and of course, face-to-face conversations), the child that communicates with his or her parents more frequently has a higher tendency to trust the parents. India is the exception, however, with almost no correlation seen. The reason why India is an exception is unclear, but in India, the level of trust toward the parents is very high to begin with, and the percentage of children who do not agree with the statement that their parents "can be trusted more than anybody else" is below 5% for all age groups, so there is a possibility that some specific domestic circumstances have influenced the results.

The size of the correlation increases in the order of message → call → face-to-face conversation, and the degree of trust increases with the amount of information transmitted using the communication method. In the case of the father and the mother, the correlation is higher for the father. To begin with, the degree of trust of the father is lower than that of the mother, and this is interpreted to mean that there is ample room for improvement in the degree of trust with the increase in communication frequency. No concrete correlation was obtained between the frequency of calls and messages and whether a difference in opinion with the parents is accepted (tolerance of heterogeneity).

5—
Mobile Phones
and Friendships



5 Mobile Phones and Friendships

Following on from the parent-child relationship, we will take a look at the impact of mobile phone use on relationships with friends. Once children are in their late teens, the majority of their communication partners are their friends. This trend is particularly conspicuous for text messaging partners.

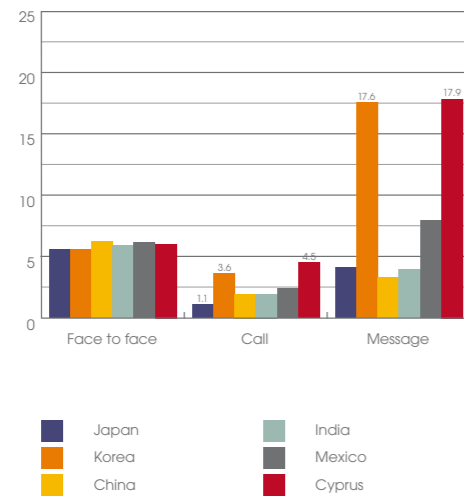
Mobile messaging allows children to be in perpetual contact with their friends even when they are elsewhere than school and this has the potential to change friendships. If that is the case, to what degree do children communicate with friends and what impact does it have on friendships?

5-1 The frequency of messages and phone calls with friends

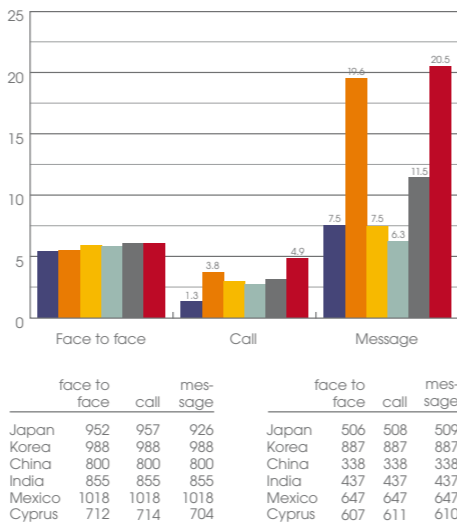
Let's start by looking at how often children communicate with their friends by messaging or phone calls. We asked respondents to nominate three friends with whom they speak often, and then asked about the frequency of mail or phone contact with these friends (not the number of mail messages but the frequency of contact). We also asked for the number of face-to-face conversations for the sake of comparison. Figure 5-1 shows two graphs that compare the average values for the three friends on a country-by-country basis. The top graph is for all respondents, and the bottom graph is limited to those respondents who own a mobile phone. However, limiting the results to only mobile phone owners simply results in a slight increase in the frequency of messages and calls, with the distribution pattern almost identical.

Figure 5-1. Communication frequency with friends

Communication frequency with friends



Communication frequency with friends; Mobile phone holder only



	face to face	call	message		face to face	call	message
Japan	952	957	926	Japan	506	508	509
Korea	988	988	988	Korea	887	887	887
China	800	800	800	China	338	338	338
India	855	855	855	India	437	437	437
Mexico	1018	1018	1018	Mexico	647	647	647
Cyprus	712	714	704	Cyprus	607	611	610

For every country, messaging frequency is high, and followed by face-to-face conversation and voice calls in that order. It is clear that mobile messaging is a fundamental means of communication with friends in all countries. The results are contrastive when we compare with the parent-child relationship where the frequency of calls is higher than messages (Fig. 4-5). But there are differences depending on the country. In Japan, Korea and Cyprus, the frequency of contact by messages is about five times higher than the frequency of calls while in China, India and Mexico, the difference is not that high at about two to three times. There are also several other differences between countries. Let us look at them in order.

First, the average number of face-to-face conversations is about five or six per week, with no difference between countries. "Five or six per week" is the number of days that children go to school, so this implies that the respondents speak with these friends (the friends with whom they speak most often) every day at school. In this respect there is no difference between countries.

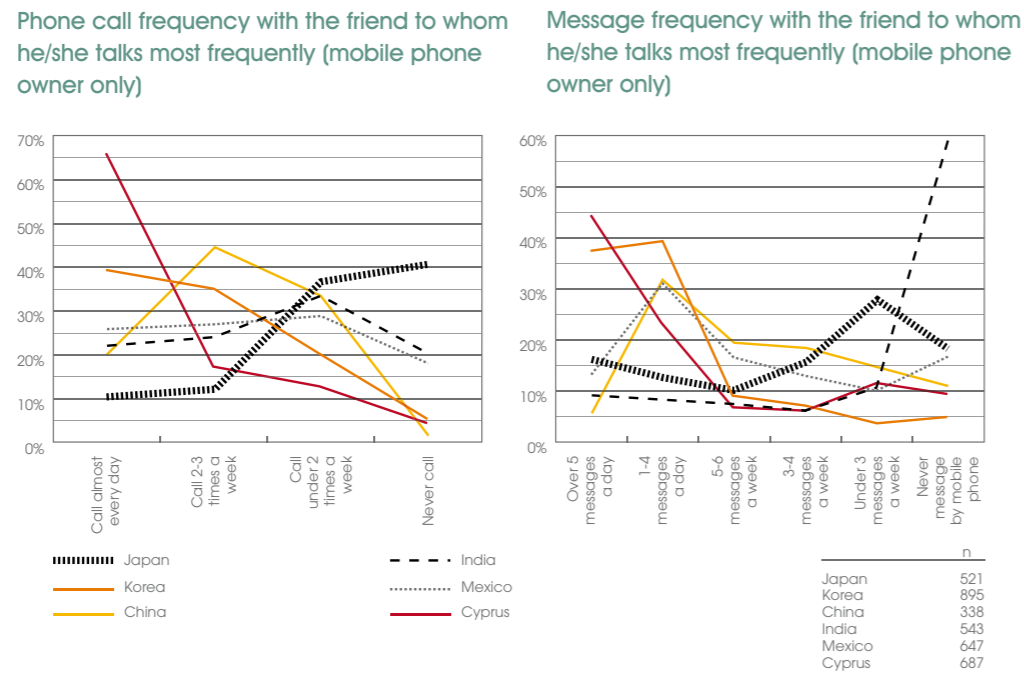
Differences begin to appear when we look at calls. For Korea and Cyprus the number of calls is relatively high at four or five times a week, followed by China, Mexico and India at about three times a week, with Japan particularly low at slightly more than one call per week. The "number of calls" listed here is the average number of calls for the three nominated friends, and so the frequency with which respondents speak to one of the three friends is the sum total of the calls made, or three times this value. Mobile phone owners in Cyprus spoke to one of the three friends 1.5 times a week (5×3), which means that on average they spoke with one of their three nominated friends twice a day. By comparison, mobile phone owners in Japan made 1.3×3=3.9 calls per week, or only slightly more than one call per day to one of the three friends. This is a significant difference in call frequency.

For messages, the frequency for Japanese respondents increases to roughly the same level as Chinese and Indian respondents, but still does not come anywhere close to the level of Korean and Cypriot respondents. Looking at mobile phone owners, Japanese, Chinese and Mexican respondents averaged six or seven messages per week, or roughly one message per day. For Korean and Cypriot respondents the number of messages reached 20 per week, which works out to roughly three messages per day or three times the level of Japan, China and Mexico. As we already saw with regards to mobile phone usage in Chapter 2, the frequency of message usage in Korea and Cyprus is particularly high, and this is reflected in the frequency of messages between friends.

To confirm these observations, let's look at the call frequency distribution for the friend (of the three nominated friends) with which the respondent spoke most often. This is shown in Figure 5-2, which presents graphs indicating the distributions for calls and messages. Looking at calls, we see that for Cyprus the number of children who answered that they spoke to this friend almost every day stands out as particularly high, reaching a level of 65%. In Korea as well, 40% of children answered that they spoke with this friend almost every day. For China, India and Mexico, this rate drops to 20% to 25%, while in Japan this rate is no more than 10%.

Conversely, in Japan as many as 40% of children said that they do not call even the friend with whom they spoke the most. In other countries, this rate is less than 20%, and for Korea, Cyprus and China in particular, this rate is close to zero. In Korea, Cyprus and China it is probably inconceivable that 40% of people would, when nominating the friend with whom they spoke the most, say that they do not speak to that friend over the phone. There is a significant difference between countries in terms of how phone calls are used.

Figure 5-2. Message/call frequency with friend to whom children talk most



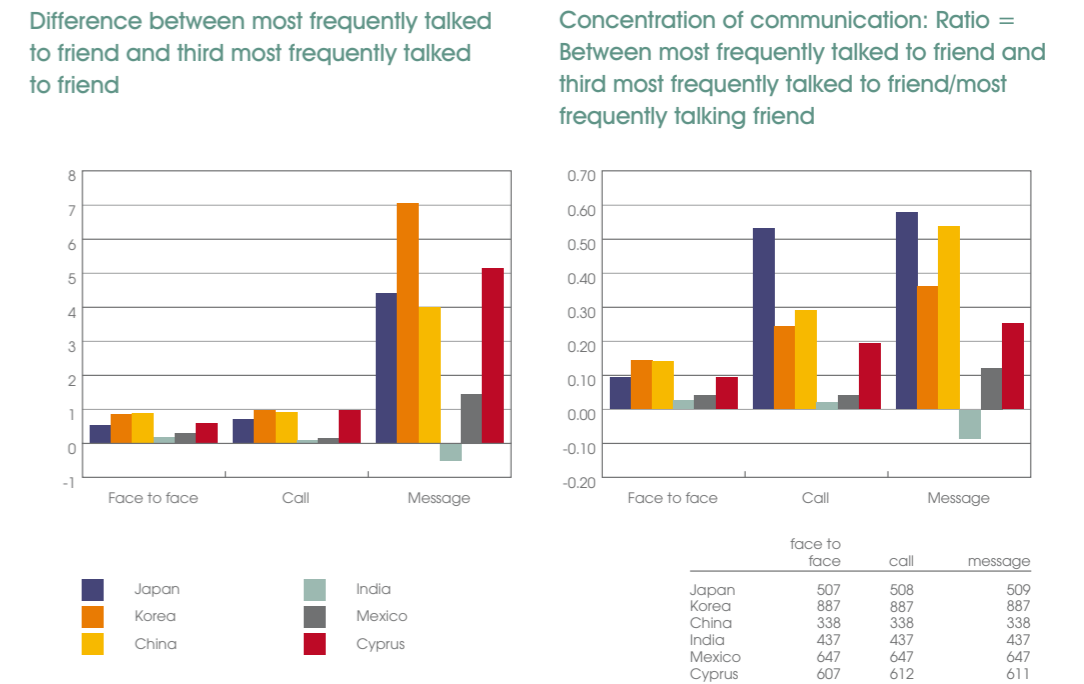
For messages, India is unusual in that as many as 65% of children said that they do not exchange any messages with the friend with whom they spoke the most. This graph is limited to children who have a mobile phone, and so this difference is not due to the difference in the ratio of people who own mobile phones. We would like to point out that in India there is nothing particularly exceptional about call usage (as opposed to message usage) with respondents calling their friends with roughly the same frequency as respondents in Mexico and other countries. This means that in India the non-typical result is only limited to messages. One possible reason is the fact that in India many mobile phones are shared (70% of children mobile phone owners share his/her phone with others.) When mobile phones are shared, privacy cannot be maintained with messages because they can be read by other people. The ratio of shared mobile phones in India is not higher than that for exclusively-owned mobile phones, but network externalities apply to messages, and so it is conceivable that message contact between friends stagnates once a habit of not messaging friends is established.

In addition, here too the amount of message for Korea and Cyprus is quite high. As many as 40% of children in Korea and Cyprus exchange more than five messages a day with the friend with whom they speak the most often.

5-2 Concentration of communication

Communication by mobile phone, including messaging, is a frequent exchange of short content with particular people, and so there is a possibility that only communications with particular people will deepen. To consider this possibility, we calculated the difference between the frequency with which respondents communicated with the friend with whom they spoke the most and the friend (of the three nominated friends) with whom they spoke the least. The results are shown in Figure 5-3. The graph on the left shows the average values of the actual difference in frequencies, while the graph on the right shows ratios that have been calculated by dividing these average values by the frequency with which respondents communicate with the friend with whom they communicate the most (the frequency in the bottom graph in Figure 5-1).

Figure 5-3. Concentration of communication with friends



For both of these graphs, the values for India and Mexico are low for all types of communication (face-to-face, phone calls and messages). That is, in India and Mexico there is very little difference in how often children communicate with the friend with whom they speak to the most and the friend (of the three nominated friends) with whom they speak the least. In other words, communications are distributed between the three friends, without concentrating on a particular friend. In the other four countries (that is, Japan, Korea, China and Cyprus), there is a tendency for communications to concentrate on a particular friend, with a difference emerging in how often children communicate with the friend with whom they speak to the most and the friend (of the three nominated friends) with whom they speak the least. Looking at the ratios, this trend is particularly strong in Japan and China, with the number of calls and messages exchanged with the friend (of the three nominated friends) with whom they speak the least stuck at about half the number for the friend with whom they speak the most.

However, we cannot immediately conclude that this concentration of communications is due to mobile phones, because the same trend can be observed in face-to-face conversations. As can be seen in the graph,

in India and Mexico there is very little difference for face-to-face communications as well. Perhaps we need to consider influences other than mobile phones, such as the extent of the tendency for children to play in groups.

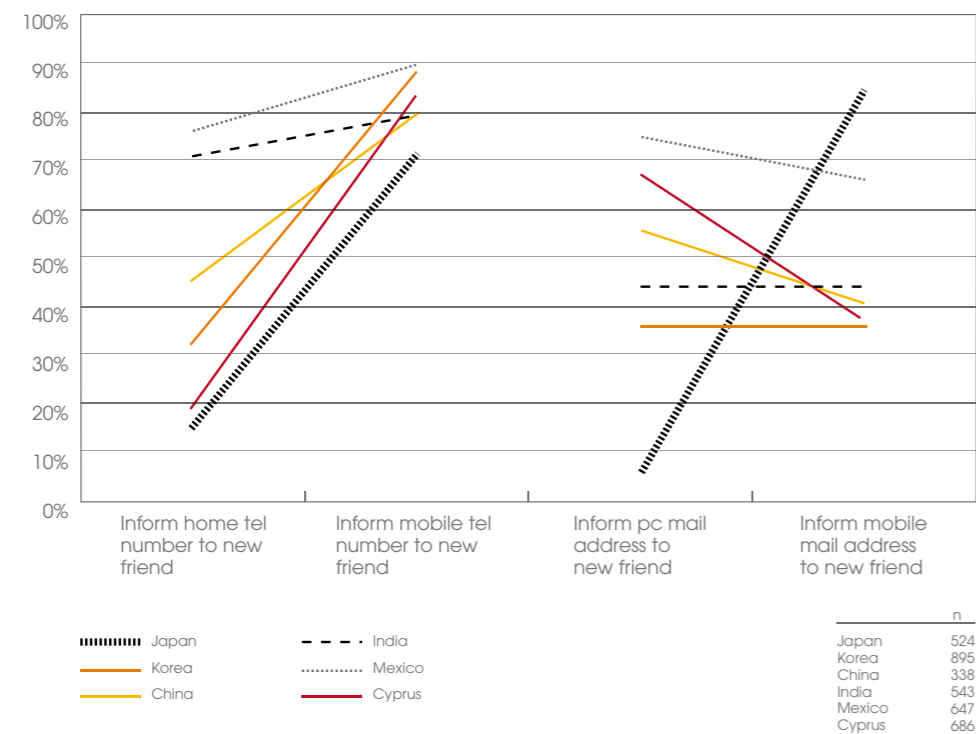
5-3 The role of mobile phones

In order to look at the role of mobile phones in relationships with friends, we asked respondents which contact information they gave to new friends. The first two columns in Figure 5-4 are the percentage of children who gave their home phone number to new friends and the percentage of children who gave their mobile phone number. The total is more than 100 because respondents could give both answers. The lines joining the values for these two columns rise for all countries, indicating that more children give their mobile numbers. The country where the fewest children gave their mobile number to new friends was Japan, at 70%. For all other countries the rate was more than 80%, suggesting that mobile phones are a key method for communications between friends.

However, looking at the results country by country, there is a difference in the way home phone numbers are treated. In Japan and Cyprus, only about 20% of children give their home number to a new friend, a rate that increases slightly in Korea (30%) and China (45%), with the rates for India and Mexico exceeding 70%. For children in Mexico and India, giving a new friend their home number is normal, but in Japan and Cyprus this can be said to be exceptional. We suppose that this difference is due to differences in the extent to which family members, such as parents, are involved in their children's relationships with their friends.

The right-hand two columns of Figure 5-4 show the percentage of children who give their computer mail address to new friends versus the percentage of children who give their mobile number. The most significant feature here is the line for Japan, which rises sharply while the lines for all of the other countries are either falling or horizontal. Since SMS/IM are more popular than email in countries other than Japan, it follows that the line should be rising substantially in other countries as well.

Figure 5-4. Contact information which children give to their friends



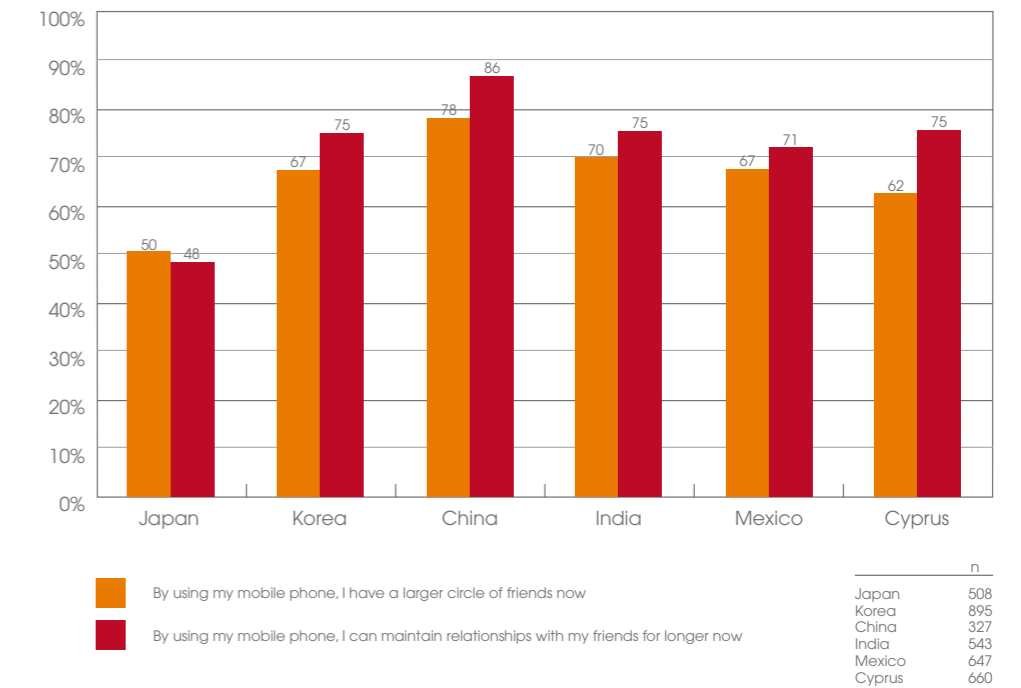
However, in Japan only 10% of children give their computer mail address, a phenomenon which is unique and not observed elsewhere. That is, computer mail addresses and mobile mail addresses are normally used in the same way between friends, but only in Japan is there a strong bias towards mobile mail addresses.

5-4 Effects on relationships with friends: heterogeneity and homogeneity

Have children's relationships with their friends changed as a result of having a mobile phone? First we asked respondents whether they thought that they had more friends as a result of having a mobile phone, and whether they were able to maintain friendships with new friends for longer. The results are shown in Figure 5-5, with half or more respondents in each country answering affirmatively. Apart from Japan, the level of affirmative responses was around 60% to 70%, indicating that children evaluate the influence of mobile phones on their friendships positively.

¹² Kobayashi & Ikeda (2007) A study of high school students found that mobile e-mail use indirectly has a negative effect on tolerance because it leads to increased homogeneity and decreased heterogeneity of dyadic relationships i.e. micro personal networks.

Figure 5-5. Effect of mobile phone on relationships with friends



However, as children continue to use mobile phones over time, they become less likely to give negative evaluations. A slightly more useful index is to look at trends towards homogeneity and heterogeneity. A "trend towards homogeneity" refers to a tendency to strengthen relationships with people who are relatively similar to oneself. A "trend towards heterogeneity", on the other hand, refers to a tendency to develop relationships with people who are different to oneself. When these concepts are applied to friendships, deepening communications with a small number of friends with similar status, interests and inclinations is a "trend towards homogeneity" whereas developing communications with many friends with different status, interests, and inclinations is a "trend towards heterogeneity." There is a theory that mobile messaging, which typically involves a short exchange between people who share a closer relationship, tends to

promote a "trend towards homogeneity"¹² Let's see if this theory holds up.

First, we asked respondents which of the following changes in their friendships had occurred as a result of using mobile messages.

- (1) Increased your chances of associating only with those friends who you get along with
- (2) Weakened relationships with friends who are not so close to you
- (3) Reduced the need to have relationships with friends who do not get along with you
- (4) Enabled you to communicate with people in different generations to you
- (5) Enabled you to associate with friends who were not so close to you
- (6) Enabled you to associate with people or groups which have different interests/concerns from you

The first three changes (1), (2) and (3) indicate a "trend towards homogeneity" as communications between similar people become more intimate, whereas the last three changes (4), (5) and (6) indicate a "trend towards heterogeneity" as communications with people different to oneself become more frequent. Respondents were asked to say whether they "Agree" (4 points), "Somewhat agree" (3 points), "Somewhat disagree" (2 points) or "Disagree" (1 point) with each of these statements. The average value for statements (1), (2) and (3) was used to measure the "trend towards homogeneity" and the average value for statements (4), (5) and (6) was used to measure the "trend towards heterogeneity." In both cases, higher values indicate stronger tendencies towards homogeneity or heterogeneity.

The first point to note is that the two indices are positively correlated. Figure 5-6 shows the correlation coefficients for these two indices on a country-by-country basis, with positive values for each country. The fact that there is a positive correlation means that the use of mobile messaging promotes both tendencies. The relationship is not one where heterogeneity declines as homogeneity increases. Since heterogeneity and homogeneity are opposing concepts, this requires explanation. One way of thinking about the issue is that the influence of mobile phones applies differently to different groups of people, so that it is possible that, for example, respondents only hang out with good friends in class at school (a "trend towards homogeneity") but in extra-curricular activities respondents interact with people with whom they had not previously come into contact (a "trend towards heterogeneity").

¹³ The number of messages and calls are the total number without specifying the other person. The same analysis was done for the number of messages and calls with three friends without any impact on the general trend.

Let's look at the correlation between the frequency of messages and phone calls. Table 5-1 presents a list of the correlation coefficients between the logarithms of the number of messages or calls and the homogeneity and heterogeneity indices¹³.

The trend for phone calls is the same, except that the correlations are not as strong as for messages. There were differences between different countries, with significant relationships for phone calls detected for Mexico and Cyprus but not for Korea or China.

The first point to note is that almost all of the correlation coefficients are positive, with only one exception, which tells us that both phone calls and messages increase both homogeneity and heterogeneity. The clearest case of this relationship is where messages increase heterogeneity – all of the correlations between heterogeneity and the number of messages are significant, and the values are relatively high, as can be seen in the second column of the table. In other words, children that send and receive a large number of messages tend to interact with people from generations or environments that are different to their own. However, the trend towards homogeneity in the first column is also significant (with the exception of two countries) and so messaging also increases the trend towards homogeneity, although to a lesser extent. The dual nature of messaging has been confirmed here as well.

Let's look at the relationship with internet usage as yet another element with an impact on homogeneity and heterogeneity. We asked respondents whether they used the mobile internet and, if so, how many times per day, and then sought the correlation coefficients between these values and homogeneity and heterogeneity, as shown in Table 5-2. The results are difficult to read because they include several minus signs, but the influence on heterogeneity is mostly positive, which can be interpreted as meaning that using the mobile internet increases interactions with people with whom the respondents would not normally come into contact. For some countries, a tendency to increase homogeneity could also be found, but this trend was not as strong as for heterogeneity. Furthermore, looking at individual countries, we see that in Japan there is a significant positive correlation in all cases. Of the countries in this study, Japan has the highest rate of internet usage, and the fact that a positive correlation has been found in Japan suggests that mobile internet usage has the dual effect of increasing both homogeneity and heterogeneity.

Figure 5-6. Correlation between homogeneity index vs heterogeneity index

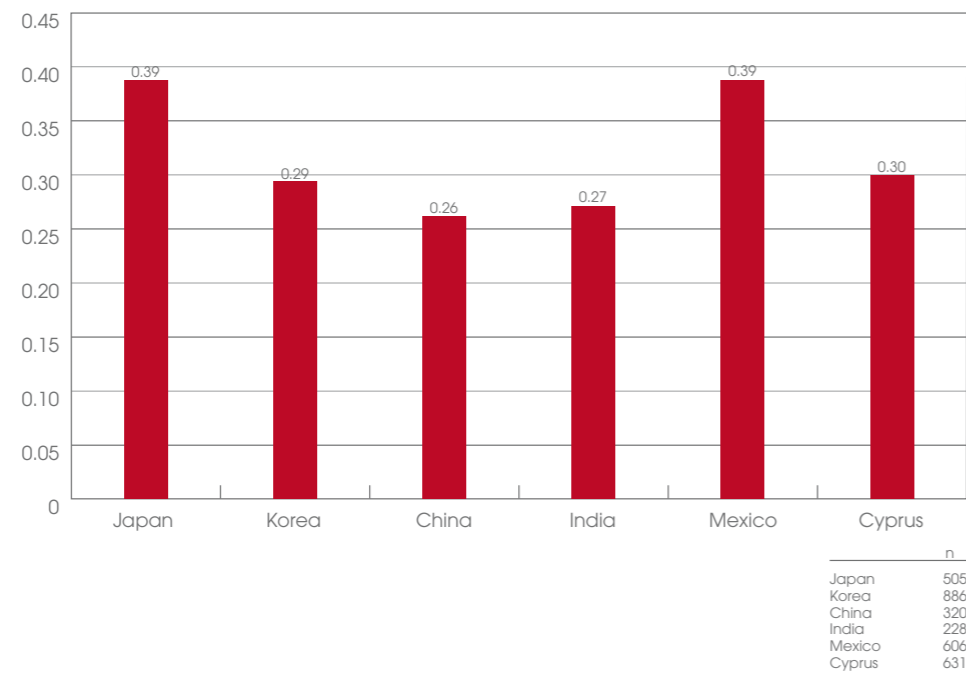


Table 5-1. Correlation between message/call frequency and homogeneity/heterogeneity

	Messages		Calls	
	Homogeneity	Heterogeneity	Homogeneity	Heterogeneity
Japan	0.1779*	0.3002*	0.1018*	0.0836
Korea	0.0518	0.1166*	0.0415	0.0552
China	0.1009	0.2381*	0.0519	0.0155
India	0.1364*	0.1431*	-0.0083	0.1681*
Mexico	0.1290*	0.1683*	0.1379*	0.1186*
Cyprus	0.1155*	0.2194*	0.0890*	0.1887*

*** significant at 5%

n	
Japan	505
Korea	886
China	320
India	228
Mexico	606
Cyprus	631

Table 5-2. Correlation between internet usage/frequency and homogeneity/heterogeneity

	Internet usage		Frequency of net usage	
	Homogeneity	Heterogeneity	Homogeneity	Heterogeneity
Japan	0.1886*	0.2110*	0.1054*	0.2205*
Korea	-0.0719*	-0.0446	0.0076	0.1116
China	-0.0018	-0.0733	-0.0265	0.2091*
India	0.2352*	0.0134	-0.3241	0.2229
Mexico	0.0695	0.0991*	0.3313*	0.2433*
Cyprus	0.0671	0.1030*	0.1586	0.172

*** significant at 5%

n	internet usage	frequency of net usage
Japan	523	359
Korea	895	276
China	338	124
India	543	33
Mexico	647	90
Cyprus	688	95

In conclusion, in all aspects of communication by mobile phone (messaging, calls and mobile internet) there is a trend towards the dual effect of increasing both homogeneity and heterogeneity. It is therefore misleading to emphasise only a "trend towards homogeneity" as an effect of mobile communication.

5-5 Effects on friendships: Tolerance of difference

Let's consider the influence of the degree of "tolerance of difference" as a measure of the influence of mobile phones on friendships. "Tolerance of difference" refers to the extent to which someone can tolerate the fact that a friend has opinions that are different to his or her own opinions. Respondents were asked to rank their attitude towards friends with different opinions using four levels, and we looked at the relationship between these results and mobile communications, as shown in Table 5-3. We asked the question in relation to both close friends and friends who are not so close.

Looking at the results, we see that almost none of the correlation coefficients are significant. The signs are jumbled and no consistent results can be seen. For calls in particular, only one result is significant, and it seems that an increased number of calls has no relationship to tolerance of heterogeneity. For messages there is a slight correlation, with people who often use messages with friends who are not particularly close tending not to mind if their friends have different opinions (in Korea, India and Mexico). However, there is no such trend for close friends. Furthermore, looking at individual countries, there were three significant positive correlations for Mexico, indicating a tendency for tolerance of heterogeneity as communication increases. Mexico is the only country where the signs are stable, a distinct result that is not observed elsewhere.

Table 5-3. Correlation between message/call frequency and tolerance to different opinion of friends

	Messages		Calls	
	Close friends	Not close friends	Close friends	Not close friends
Japan	-0.0212	-0.0059	-0.0501	-0.072
Korea	0.0225	0.0723*	-0.0243	0.050
China	0.0279	0.0158	-0.0038	0.048
India	-0.001	0.1368*	-0.0394	-0.034
Mexico	0.1275*	0.1055*	0.1133*	0.018
Cyprus	-0.0299	-0.0496	-0.0191	0.016

*** significant at 5%

n	message	call
Japan	510	516
Korea	886	895
China	320	338
India	228	543
Mexico	606	647
Cyprus	645	681

Table 5-4. Correlation between internet usage/frequency and tolerance to different opinion of friends

	Internet usage		Frequency of net usage	
	Close friends	Not close friends	Close friends	Not close friends
Japan	0.1040*	0.053	0.0972	0.0995
Korea	0.0049	0.0458	0.1883*	0.1068
China	0.0409	0.0051	-0.1061	-0.0919
India	-0.0532	-0.0401	0.4459*	0.3487*
Mexico	0.0182	0.0426	0.3077*	0.1528
Cyprus	0.0589	0.0645	0.1134	0.1793

*** significant at 5%

n	internet usage	frequency of net usage
Japan	523	359
Korea	895	276
China	338	124
India	543	33
Mexico	647	90
Cyprus	688	95

Table 5-4 shows the effect of the frequency of mobile internet usage. There are many positive signs showing a trend toward increasing tolerance for heterogeneity with the use of the mobile internet. It is particularly noticeable that there are four instances of positive correlation with regard to close

friends (first and third column from the left). Since there are few instances of significance, a strong conclusion cannot be made but it can be observed that there is a rising trend for tolerance in correlation with the use of the mobile internet.

Up to this point, friends in the broader sense have been included. However, it may be that communication by frequent mobile messaging has an impact on relationships with a narrower range of friends. For example, when communication with a particular friend grows strong, there may be a trend towards excluding heterogeneity. Accordingly, we looked at the degree of tolerance for heterogeneity in mobile communications when we asked respondents to limit themselves to three friends. We asked respondents whether it made a difference if any of the three friends they talked with most frequently had a different opinion, and we looked for correlation between the answers and the number of messages and calls to that friend. Should there be a rise in the extent to which it does not matter if a friend has different opinions as the number of messages and calls increases, mobile communication increases tolerance and conversely, if there

is a decline, tolerance is lowered. Table 5-5 shows the results. Since the correlation has been calculated with each of the three friends regarded as a separate sample, the number of samples has roughly tripled.

The correlation coefficients are mostly positive values indicating that the higher the frequency of messages and calls, the less it matters if the friend has different opinions. The conclusion is the same even when the subject of inquiry changes from friends in general to the three friends most frequently spoken with, indicating a trend for higher tolerance of heterogeneity when mobile communications grow lively. At least there are no instances of lowered tolerance due to mobile communications. In terms of mobile communications, it seems that there is no reason to worry that there is a loss of tolerance of heterogeneity because communication is limited to homogenous partners.

Table 5-5. Correlation between message/call frequency and tolerance to different opinion of friends

	Message	Call
Japan	0.0403	0.0154
Korea	0.0821*	0.0457*
China	0.1001*	0.0939*
India	0.0548*	0.1248*
Mexico	0.0470*	0.0341
Cyprus	0.007	-0.0411

*** significant at 5%

n	message	call
Japan	510	516
Korea	886	895
China	320	338
India	228	543
Mexico	606	647
Cyprus	645	681

Since these results only indicate the correlation between two variables, their limitations must be noted. In Chapter 3, we tested tolerance for heterogeneity with the father or the mother as partner. To summarise Chapters 2 and 3, if we make a separate study of the father, mother, close friend or not so close friend as the partner, no correlation is found with mobile communications. However, if we add up these four indicators to create one indicator and take into account partial correlations controlled by age, we find a negative correlation between mobile messaging and tolerance of heterogeneity in Japan. That is to say, the higher the frequency of mobile messaging, the less tolerance for heterogeneity, indicating a trend for requiring the partner to conform to oneself. As there is still potential for the results to be reversed by combining several factors in this way, we need to conduct multivariable analyses.

To begin with, the frequency of messages and calls is higher for both Cyprus and Korea than for other countries. A quick glance reveals that in these two countries the frequency of calls and messages among friends is 1.5 to two times higher than in other countries.

Surpassing calls, messages are used most often to keep in contact with friends. In contrast, calls are more frequent in the parent-child relationship, a trend that does not vary by country. In Japan, Korea and Cyprus, the frequency of contact by mobile messaging is as much as five times higher than calls with messages taking the leading role for contact between friends.

In India, exceptionally, the number of messages is two times lower than calls among friends and, in addition, more than 50% of children do not even contact their closest friends through messages, indicating a trend that differs from other countries. This may be because mobile phones are often shared in India (70% of child mobile phone owners share their phone with others).

Japan, on the other hand, has a lower frequency of calls than other countries. In Japan, about 10% of children call their closest friends nearly every day, which is a big difference from Korea (40%) and Cyprus (60% or more).

To some degree, there is a tendency to concentrate on a particular friend for both messages and calls; however in India and Mexico only, there is a tendency to associate equally with a broad range of friends without concentrating on anyone in particular.

A comparison with computer email indicates that computer email is also used as a means of contacting friends in the same way as mobile messaging. However, exceptionally, in Japan computer email is hardly used. In Japan, communication between friends is not by computer but the trend is towards using only mobile phones, in which case, the means of communication is overwhelmingly mobile messaging, not calls.

When studying whether mobile communication strengthens relationships with friends who are similar to oneself (trend towards heterogeneity) or whether it creates relationships with friends who are different, both trends are found simultaneously. More likely than not, the trend towards heterogeneity can be observed with more clarity. Concerning the degree of tolerance for heterogeneity among friends, we did not detect that mobile communication lowers the degree of tolerance. There is a view that as mobile communication with the same people increases, the result is that friendships grow more homogenous creating intolerance for heterogeneity, but no such trend was observed.



6—
Mobile Phone Use
and Social Attitude



6

Mobile Phone Use and Social Attitude

This chapter considers the relationship between mobile phone use and social attitude.

The use of media is considered to have an impact on people's behaviour and attitude and is the subject of research not only in the field of media theory but also in other fields. Research has also been conducted into CMC (Computer Mediated Communication) over the internet, which has spread rapidly among the general public in recent years. For example, the phenomenon of flaming suggests that through electronic mail, actions and decisions, not just talk, might become more extreme and impulsive (Sproull & Kiesler, 1991), but also that CMC has the positive effect of contributing to self-presentation efficacy because, compared with face-to-face communication and other media such as the phone, CMC lowers cognitive load in the event of self-presentation or self-disclosure (Sugitani, 2007.) CMC has also the potential effect of nurturing sociability, enhancing reciprocity and thereby reducing privatisation because it promotes collective behaviour through online communication (Kobayashi, 2004).

Mobile phones are also the subject of CMC research, given that internet access functions on mobile phones have become widely used, and the unique feature of mobile phones - that is, the fact that they are carried and used privately by a specific individual - is a feature that makes mobile phones stand out from other media and has attracted the attention of researchers. For example, it has been found that mobile e-mail users tend to show greater empathy than non-users (Hashimoto, 2001), and a study of high school students found that mobile e-mail use indirectly has a negative effect on tolerance because it leads to increased homogeneity and decreased heterogeneity of dyadic relationships i.e. micro personal networks (Kobayashi & Ikeda, 2007).

In the future, in more and more countries, there will be an increasing number of children who have been around personal computers and mobile phones since the day they were born, and who take the use of CMC to maintain and build interpersonal relationships entirely for granted. This chapter considers such use of media by children, especially their use of mobile phones which can also be described as the form of media currently closest to them, and the relationship between such use and children's social attitudes. Of course, since people's social attitude is formed under the influence of a variety of factors including age, family environment and friendships, it is unlikely that the impact of mobile phone use alone would cause any major difference in a child's social attitude. However, if a correlation does exist, there may be a point in examining the cause of this correlation, in other words, the types of mobile phone use that show a stronger correlation.

6-1 Social Attitudes

For the purposes of this chapter, social attitude is defined as the six concepts of reciprocity¹⁴, general trust¹⁵, innocence, utilitarianism¹⁶, empathy¹⁷ and privatisation¹⁸.

- 14 Kobayashi T, Ikeda K. & Miyata K. (2006) Social capital online: Collective use of the Internet and Reciprocity as a Lubricant of Democracy. *Information, Communication & Society*, 9(5), 582-611.
- 15 Toshio Yamagishi (1998) *The Structure of Trust*.
- 16 Hayashi N. & Yosano A. (2002) General Trust and Sensitivity to information of others. *Japanese Journal of Social Psychology*, vol.43, 112-113.
- 17 Davis M. H., 1996.
- 18 Ikeda, K. 2007 *Consequence of Privatisation: Narrowed Political Arena- Reality of Politics and Social Psychology*, 201-228.
- 19 Susumu Handa (1991) *Developmental Psychology of Sociability*.
- 20 Cronbach's alpha coefficients are general trust 0.82, innocence 0.77, empathy 0.70, utilitarianism 0.69 and privatisation 0.67.

Definition of social attitude concepts

Social Attitude	Definition
Reciprocity	General principle that supports social exchange. There are two types of reciprocity, specific reciprocity that promotes dyadic social exchange ("being kind to kind people", "tit-for-tat") and general reciprocity that supports general exchange within a larger group or society. General reciprocity is basic requirement for trust towards others in general.
General Trust	Trust as an expectations toward intent of others in general.
Innocence	Belief that human behaviour is comparatively consistent and people's assertions are trustworthy.
Empathy	A concept combining both the cognitive and emotional aspects of "understanding others' feelings" and "having the same feelings as others" and refers to the ability to perceive and understand the standpoint and emotional reaction of others and to put oneself in another's place and imagine the other's feelings at that point in time. ¹⁹
Utilitarianism	View that human beings basically look out for their own interests.
Privatization	Tendency to value one's own life over one's social life and one's intimate relationships with family members and close friends over public and social relationships, and to avoid becoming actively involved with society and others.

Innocence, utilitarianism and empathy are concepts related to trust, and, according to Masataka (2003), mobile phone users exhibit utilitarianism-based behaviour but this is because they cannot build social relationships based upon trust with those within their circle. In other words, mobile phone use is identified as having a detrimental effect on trust, but is this really the case? Also, Kobayashi and Ikeda (2004) state that frequent use of mobile communications leads to increased privatisation and, in particular, use of e-mail produces this effect to a greater extent than use of phone calls. Similarly Kobayashi and Ikeda (2007) note that tolerance of others is essential for the formation of reciprocal, trusting social relationships, and mobile message use indirectly has a negative effect on tolerance because it leads to increased homogeneity and decreased heterogeneity of dyadic relationships i.e. micro personal networks. But is this really true? The following section considers the relationship between mobile phone use and social attitudes, bearing in mind the findings of previous research.

6-2 Measurement of social attitude

Table 6-1 shows questions for measuring the six concepts of social attitude, respondents were asked to rank each question using a four point scale (agree, somewhat agree, somewhat disagree, disagree). The average scores calculated by dividing the sum of the rankings by the six concepts in Table 6-1 were taken as a simple measure²⁰. At the same time, for all six concepts of social attitude, adjustments were made to ensure that when any of the tendencies was strong, the score would also be high. For all six concepts, ANOVA tests indicated significant differences among the mean values across countries at 5% level. In other words, there was a significant difference depending on the country (see Appendix 3-1-b).

Table 6-1. Questions for measuring concepts of social attitude

Social Attitude	Questions
Reciprocity	When helped by someone, I will help someone else. When others extend kindness to me, I will extend kindness to someone else. When I see people helping each other, I also feel that I want to help people in trouble.
General Trust	Most people are trustful of others. Most people are basically good and kind.
Innocence	You can count on the word of most people. People generally tell the truth even when they know that telling a lie would benefit them.
Empathy	After seeing a movie/drama/animation, I have felt as though I were one of the characters. When I watch a good movie/drama/animation, I can very easily put myself in the place of a leading character. I am easily involved when I watch a movie/drama/animation. I sometimes try to understand my friends better by imagining how things look from their perspective. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.
Utilitarianism	People always look after their own interests. In this society, you have to be on the watch for others so that they do not take advantage of you. In this society, many people try to deceive others for their own interests.
Privatization	I am not concerned with anything except for my family and relatives. I would rather be not concerned with things happening in the world. My life and the whole world are strongly connected. I do not care about what other people do as long as they do not bother me.

21 It should be noted that a high score in certain concepts may not necessarily indicate a beneficial outcome for children; for example, a high score in Privatisation may indicate that a child holds back from showing an interest in social participation which is not necessarily considered beneficial.

Table 6-2. Average of social attitude concepts

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization	Ave.
Japan	3.3	2.6	2.3	2.6	2.7	2.4	2.7
Korea	3.0	2.9	2.6	2.8	2.9	2.6	2.8
China	3.5	3.4	3.1	2.8	2.9	2.4	3.0
India	3.3	3.0	2.8	2.8	3.3	3.1	3.0
Mexico	3.3	2.8	2.8	2.8	3.3	3.1	3.0
Cyprus	3.5	2.4	2.3	2.9	3.3	2.8	2.9
Total	3.3	2.8	2.6	2.8	3.1	2.8	2.9

6-3 International comparison of social attitude

This section confirms the six concepts of social attitude (reciprocity, general trust, innocence, empathy, utilitarianism and privatisation) by country. International comparisons of the mean values of each of the concepts were conducted. The results, as recorded in Table 6-2, show that the higher the score in each case, the stronger the respective social attitude concept²¹. High scores are coloured pink and low scores are coloured blue. Reciprocity has a high average (3.3)

compared with the other social attitude concepts and in particular China and Cyprus score comparatively highly (3.5, 3.5). As for general trust, China scores highly (3.4) and Cyprus registers a low score (2.4). In terms of innocence, China scores highly (3.1), while Japan and Cyprus register low scores (2.3, 2.3). Regarding empathy, Japan registers a slightly low score (2.6), and for utilitarianism, India, Mexico and Cyprus score highly (all 3.3), while Japan scores low (2.7). As for privatisation, India and Mexico have high scores (3.1), while Japan and China record low scores (2.4, 2.4).

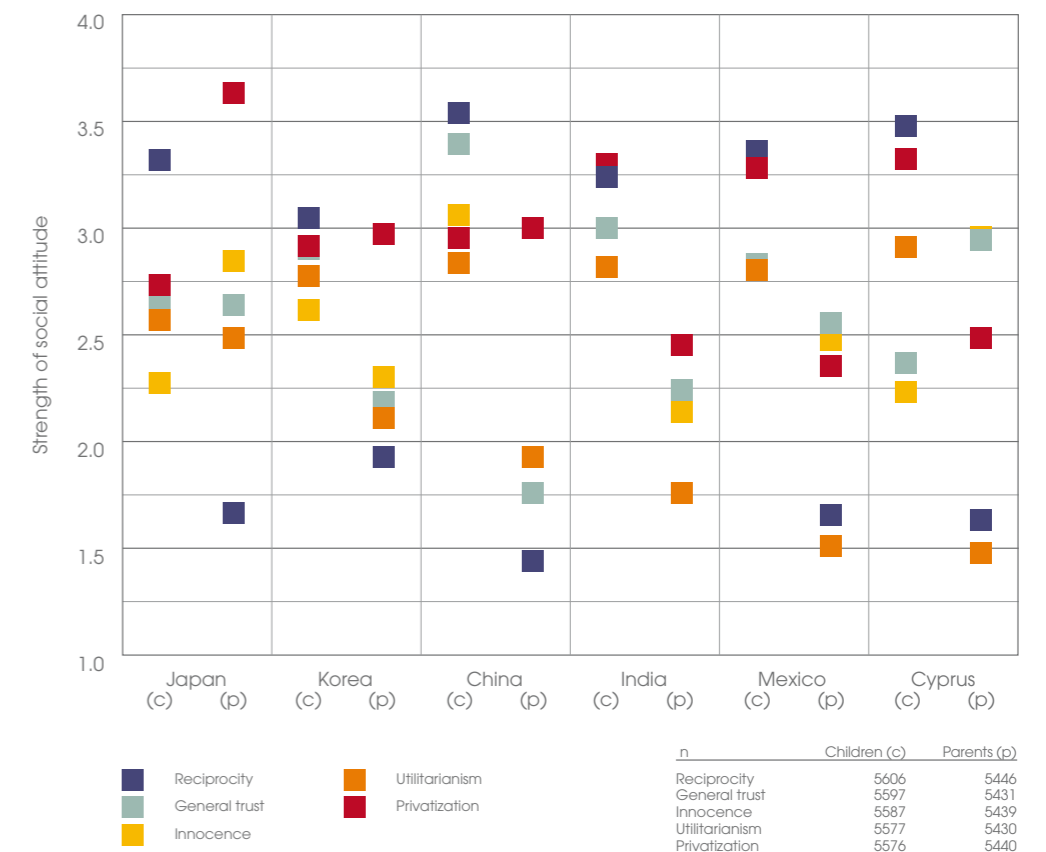
The significant difference between countries for each social attitude concept is shown in Appendix 3-1-C.

6-3-1 Comparison of the social attitude of parents and children

This section confirms the difference between the attitude of the child and the attitude of their parents with respect to the six social attitude concepts (reciprocity, general trust, innocence, empathy, utilitarianism and privatisation). Figure 6-1 shows a country-by-country comparison of averages, calculated in the same way by taking the simple total of the four ranked answers (1 – 4 points) about the six respective concepts, and dividing them by the number of questions. The point (on the x-axis) labelled with the country name only represents the attitude of the child (c)

and the point labelled with the country name represents the attitude of their parents (p). Generally speaking, it is fair to say that the social attitude of a child tends to be stronger than the social attitude of their parent. In particular, Japan shows a tendency that is clearly different from other countries; in terms of general trust and utilitarianism, children and parents score virtually the same, and when it comes to innocence and privatisation, in an about-turn, the attitude of parent is stronger. Regarding general trust and utilitarianism, in Cyprus as in Japan, the attitude of the parent is stronger. It is very interesting that although there is virtually no difference in the attitude of the child and their parents in Korea and also in China as far as privatisation is concerned, Korea, China, India and Mexico all show an extremely similar tendency when it comes to the other social attitude concepts.

Figure 6-1. Comparison of the social attitude of parents and children



6-4 Comparison of social attitude by age group

As a person grows, his or her social attitude also changes. In particular, children who are undergoing the socialisation process are at the most critical stage for nurturing sociability, and age is an important factor that needs to be taken into account when studying the impact of mobile media use.

Therefore, this section attempts to examine the way in which social attitude (reciprocity, general trust, innocence, empathy, utilitarianism and privatisation) varies according to age.

Figure 6-2 shows the results of a comparison of the averages for each of the six social attitude concepts by age group, taking ages 8 and 9 in all six countries as Group 1, ages 10 to 12 as Group 2, ages 13 to 15 as Group 3, and ages 16 to 18 as Group 4. For each of the concepts, ANOVA tests indicated significant differences among the mean values across countries at 5% level. In other words, there was a significant difference depending on age group,

suggesting that age has an impact on these social attitude concepts. As age increases, reciprocity, general trust, innocence and empathy all decrease slightly, and utilitarianism and privatisation tend to increase slightly.

6-5 Mobile phone use and social attitude

Table 6-3 shows the findings of an examination of the correlation between the six social attitude concepts (reciprocity, general trust, innocence, empathy, utilitarianism and privatisation) and possession or non-possession of a mobile phone, frequency of messages and frequency of voice calls using a mobile phone, use or non-use of mobile internet and frequency of internet use. Factors showing significant correlation (at 5% level) are shaded grey and a correlation between most of the concepts and mobile phone use was observed, albeit weak. In particular, most concepts showed a correlation with possession or non-possession of a mobile phone, frequency of voice calls using a mobile phone and use or non-use of the mobile internet.

Figure 6-2. Comparison of social attitude (by age group)

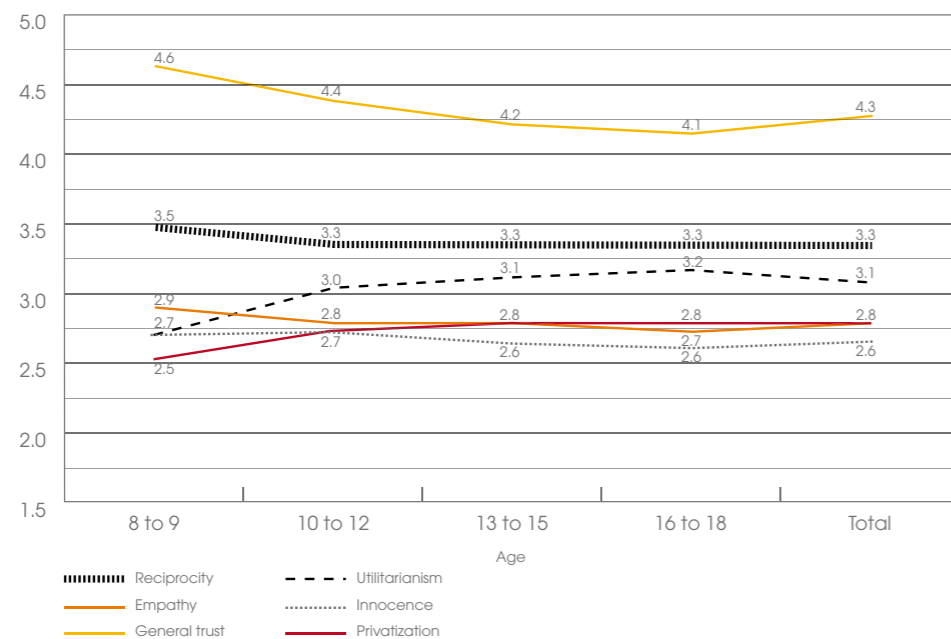


Table 6-3. Correlation between mobile phone use and social attitude concepts

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Mobile phone user	-0.11	-0.14	-0.08	0.02	0.08	0.05
Frequency of message	-0.03	-0.03	-0.05	0.06	0.02	-0.04
Frequency of voice call	0.05	0.04	0.06	0.16	0.17	0.11
Mobile internet user	0.02	-0.04	-0.06	-0.06	-0.09	-0.16
Frequency of internet use	0.09	-0.05	-0.02	-0.09	-0.03	-0.07

Table 6-4. Correlation between social attitude concepts and mobile phone use (by country)

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Japan	-0.08	-0.23	-0.12	0.00	0.11	0.05
Korea	0.04	-0.02	-0.02	0.06	0.05	-0.01
China	-0.08	0.01	0.03	-0.12	0.07	-0.02
India	-0.09	0.01	0.08	0.13	-0.07	0.14
Mexico	-0.08	-0.03	-0.02	-0.03	0.02	0.02
Cyprus	-0.04	-0.17	-0.17	-0.10	0.26	-0.09

6-5-1 International comparison of mobile phone use and social attitude

Tables 6-4 to 6-8 record the findings of a country-by-country examination of the relationship between mobile phone use and social attitude, showing that there is considerable variance for each country. However, the country-by-country examination also reveals little evidence of any correlation between the social attitude concepts and the

frequency of messaging by mobile phone, and the only country showing any correlation is Cyprus. The results show that, if anything, a greater correlation exists between the social attitude concepts and mobile phone calls and internet use. It should be noted that this insignificance does not conclude that mobile phone use does not directly affect social attitude; it is possible that the correlation between two variables is masked by the effect of other third variables.



Table 6-5. Correlation between social attitude concepts and frequency of messages by mobile phone (by country)

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Japan	0.00	0.03	0.01	0.02	0.05	0.08
Korea	0.01	-0.01	0.04	0.04	0.02	-0.06
China	0.06	-0.06	0.08	0.03	0.08	0.07
India	0.10	-0.03	-0.11	-0.02	0.08	-0.02
Mexico	-0.04	0.02	-0.04	0.01	0.01	-0.05
Cyprus	0.08	-0.02	-0.06	0.09	0.05	-0.05

Table 6-6. Correlation between social attitude concepts and mobile phone call frequency (by country)

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Japan	0.02	0.04	0.07	0.04	-0.04	0.01
Korea	0.05	0.05	-0.04	0.16	0.04	-0.15
China	0.09	0.09	0.09	-0.08	0.11	0.05
India	-0.04	-0.05	-0.03	0.06	0.02	0.10
Mexico	0.08	0.03	0.05	0.11	0.14	0.12
Cyprus	0.05	0.00	-0.02	0.11	0.06	0.00

Table 6-7. Correlation between social attitude concepts and mobile internet use (by country)

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Japan	0.04	-0.04	-0.01	0.00	0.10	0.04
Korea	0.03	-0.08	-0.03	-0.07	0.12	-0.02
China	0.09	-0.09	0.03	0.09	-0.06	0.01
India	0.13	-0.07	-0.05	0.12	0.10	0.10
Mexico	-0.01	0.07	0.09	0.00	0.00	0.03
Cyprus	0.00	0.05	0.00	0.06	0.00	-0.09

Table 6-8. Correlation between social attitude concepts and frequency of mobile internet use (by country)

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Japan	0.05	-0.01	0.06	0.03	0.14	0.03
Korea	-0.08	0.00	0.03	-0.04	0.11	-0.17
China	0.17	-0.06	0.08	-0.06	0.04	0.02
India	-0.25	0.29	0.56	-0.01	-0.43	0.00
Mexico	-0.02	0.17	0.13	-0.07	0.00	0.16
Cyprus	-0.13	-0.06	-0.01	-0.03	-0.03	0.10



6— Mobile Phone Use and Social Attitude

22 Masataka(2003) stated that mobile phone users exhibit utilitarianism-based behavior but this is because they cannot build social relationships based upon trust with those within their circle.

23 Kobayashi and Ikeda (2004) stated that frequent use of mobile communications leads to increased privatisation and, in particular, use of e-mail produces this effect to a greater extent than use of telephone calls.

Tables 6-9 to 6-13 show the results of calculating partial correlation coefficients, removing the impact of age, gender and parents' social attitude to measure the impact of mobile phone use on social attitudes more accurately, given that, depending on the country, the correlation direction is often reversed. The grey areas indicate concepts where the result is significant (less than or equal to 5%).

With partial correlation, generally, the number of concepts showing a significant correlation decreased, falling dramatically in the case of mobile phone use in particular (see Table 6-4 and Table 6-9). It is fair to say that it is important to use a partial correlation to control the effect of a third variable (in this case, age, gender and parents' social attitudes), in other words, to consider the impact of mobile phone use, having taken into account the impact of factors other than mobile phone use.

Some social attitudes still showed significant correlations with mobile phone use. For example, higher message frequency showed a significant positive correlation with reciprocity in Korea, with general trust in Japan, and negative correlation with privatisation in India. The positive impacts of mobile phone use are also evident elsewhere. For example, voice call frequency increases reciprocity (Mexico) and suppresses privatisation (India), mobile internet use increases reciprocity and innocence (India) and reduces utilitarianism (China). These positive impacts are findings that go against the previous research of Masataka²² and Kobayashi et al²³, mentioned earlier. On the other hand, some results support negative impacts. For example, mobile phone use increases utilitarianism (Cyprus), and voice call use increases utilitarianism and privatisation (Mexico). Further research would be beneficial to understand the reasons for this.

Table 6-9. Partial coefficient correlation between social attitude concepts and mobile phone use

	Reciprocity	General Trust	Innocence	Utilitarianism	Privatization
Japan	-0.04	-0.04	-0.07	-0.01	0.00
Korea	0.05	-0.03	-0.04	0.06	0.02
China	-0.06	0.03	0.06	-0.04	0.01
India	-0.06	0.01	0.09	-0.09	0.07
Mexico	-0.06	-0.03	0.00	0.03	0.03
Cyprus	-0.03	-0.03	-0.04	0.10	-0.01

Table 6-10. Partial correlation coefficient between social attitude concepts and message frequency

	Reciprocity	General Trust	Innocence	Utilitarianism	Privatization
Japan	-0.02	0.10	0.02	0.04	0.05
Korea	0.08	0.05	0.05	0.01	-0.03
China	0.02	-0.05	0.08	-0.01	0.04
India	0.04	-0.03	-0.06	0.06	-0.13
Mexico	-0.03	0.00	0.01	0.01	-0.03
Cyprus	0.08	0.05	0.01	-0.02	0.01

Table 6-11. Partial coefficient correlation between social attitude concepts and voice call frequency

	Reciprocity	General Trust	Innocence	Utilitarianism	Privatization
Japan	0.02	0.03	0.07	-0.05	0.00
Korea	0.04	0.06	-0.01	0.01	-0.16
China	0.05	0.08	0.08	0.09	0.06
India	-0.02	-0.04	0.00	-0.01	0.05
Mexico	0.08	-0.02	0.05	0.13	0.11
Cyprus	0.05	0.05	0.03	-0.02	0.05



6— Mobile Phone Use and Social Attitude

24 e.g. Ganbner et al., 1980

25 These categories are as defined in "Survey on Life and Communication" (Kobayashi, 2002)

Table 6-12. Partial coefficient correlation between social attitude concepts and mobile internet use

	Reciprocity	General Trust	Innocence	Utilitarianism	Privatization
Japan	0.06	0.03	0.00	0.09	0.04
Korea	0.03	-0.08	-0.06	0.16	-0.02
China	0.03	-0.09	0.04	-0.15	0.05
India	0.11	-0.03	0.03	0.06	0.07
Mexico	0.01	0.07	0.12	-0.01	0.04
Cyprus	0.01	0.06	0.02	-0.01	-0.08

Table 6-13. Partial coefficient correlation between social attitude concepts and frequency of mobile internet use

	Reciprocity	General Trust	Innocence	Utilitarianism	Privatization
Japan	0.06	0.06	0.06	0.15	0.03
Korea	-0.06	-0.01	-0.01	0.12	-0.11
China	0.11	-0.01	0.13	-0.03	0.06
India	-0.08	0.08	0.52	-0.30	0.21
Mexico	-0.03	0.15	0.12	-0.03	0.16
Cyprus	-0.12	-0.08	-0.04	0.04	0.11

6-5-2 International comparison of mobile internet use and social attitudes

The content and purpose of mobile internet use can be broadly divided into categories: information gathering, entertainment, transactional and communication (interaction with others). Though all are referred to as internet use, the respective activities are very different. Use for information gathering and entertainment is activity only for oneself rather than for interaction with others, while on the other hand, use for communication is literally activity aimed at interaction with others. Upon consideration of the relationship between mobile internet use and the social attitude of the internet user, it is probably valid to focus on the aspect of whether or not internet use is undertaken for the purpose of communication. Therefore, Table 6-14 shows partial correlation coefficients, where the effect of age, gender and parents' social attitude is controlled, to confirm the relationship between social attitude and mobile internet use for information gathering, entertainment and communication.

Firstly, a comparison of the results shown in Tables 6-12 and 6-13 reveals that while in Table 6-12 internet use results for reciprocity are consistently positive and show the same trend, the trend is quite different from that

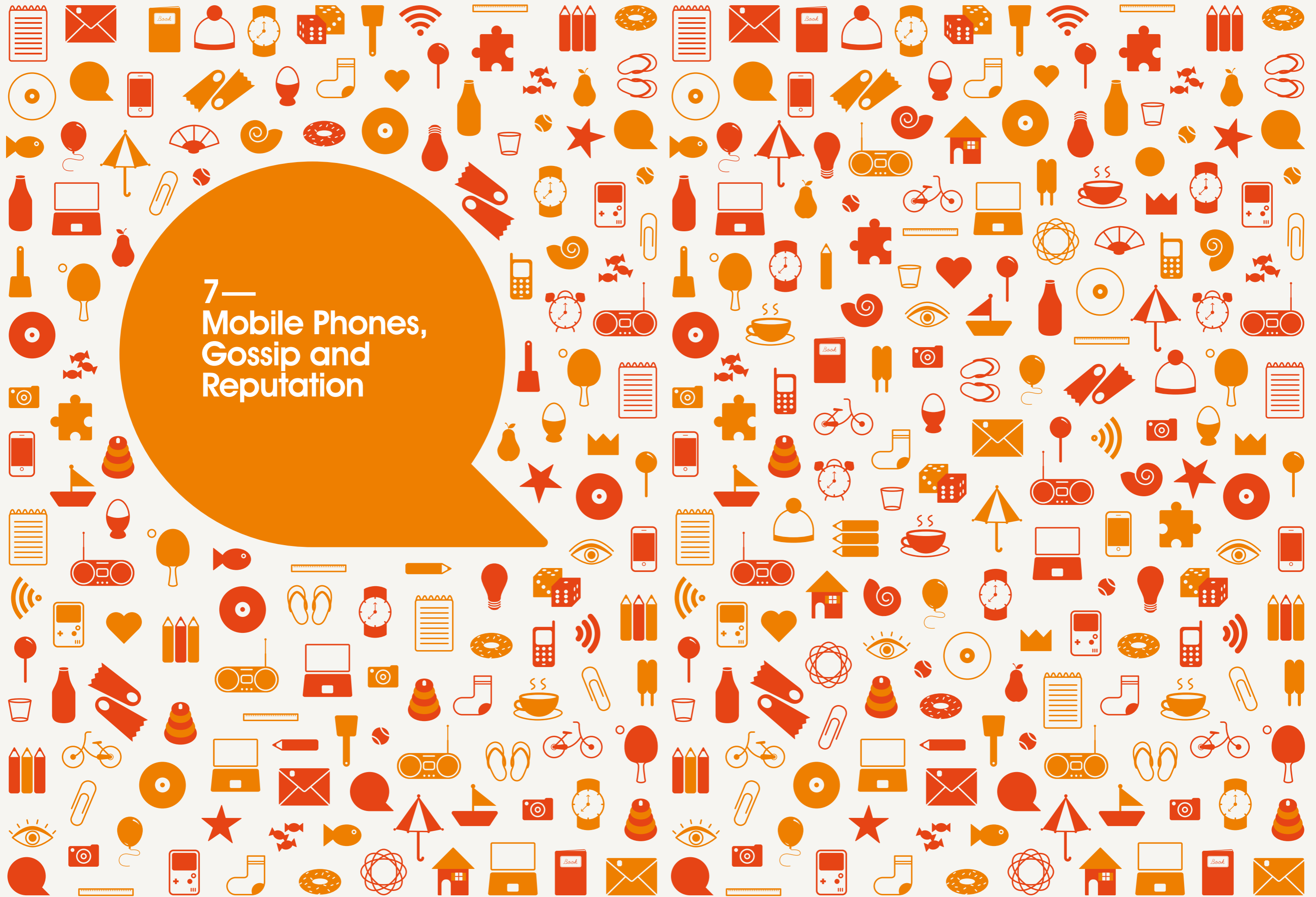
shown in Table 6-13 internet use frequency. These results show that activities referred to simply as "internet use" have a different impact depending on which category of content and purpose they fall into.

While for reciprocity results consistently show a positive correlation, for general trust, innocence and empathy results consistently show a negative correlation. It was found that information gathering-type activities and communication-type activities have the same impact, but why is such an impact produced simply through the acquisition of information? According to cultivation theory in mass media research, it has been found that people who watch television and other mass media for prolonged periods of time tend to be more anxious and more distrustful of others and it may be that there is a connection with such a phenomenon²⁴. One interpretation of our findings is that people show reciprocity, trust and empathy towards different people. While mobile phone use can increase reciprocity towards people within a certain group, it can also reduce trust towards people in other groups. However, for the findings of this analysis to be validated, further research is needed.

Table 6-14. Partial correlation coefficients between social attitude concepts and mobile internet use by category²⁵

	Reciprocity	General Trust	Innocence	Empathy	Utilitarianism	Privatization
Obtain information related to news, weather forecasts and transport	0.10	-0.10	-0.07	-0.07	0.04	-0.01
Obtain information related to sports, entertainment, movies, hobbies and travel	0.07	-0.06	-0.03	-0.07	0.05	0.01
Download ringtones, ring songs or screensavers	0.02	-0.08	-0.13	-0.13	0.06	0.01
Enjoy games, music or videos online or offline after downloading	0.02	-0.02	-0.01	-0.04	0.03	-0.03
Read messages on BBS, SNS sites (mixi, GREE, etc.), blogs or profile sites of friends or acquaintances	0.09	-0.12	-0.14	-0.09	0.02	-0.07
Write messages on BBS, SNS sites (mixi, GREE, etc.), blogs or profile sites of friends and acquaintances	0.07	-0.10	-0.10	-0.06	0.04	-0.03
Update messages on your own BBS, SNS site (mixi, GREE, etc.), blogs or profile sites	0.08	-0.12	-0.11	-0.06	0.01	-0.05
Checking web email (Hotmail, Gmail, etc.)	0.07	-0.04	0.00	0.04	0.09	0.08

7—
Mobile Phones,
Gossip and
Reputation



7

Mobile Phones, Gossip and Reputation

26 Rumor and Gossip: the Social Psychology of Hearsay (1982) ROSNOW, R.L. / FINE, G.A.

This chapter explores the everyday communication environment of young mobile phone users from the viewpoint of gossip and reputation.

The function of gossip in society and the role of gossip in human psychology and behaviour have been studied mainly in the fields of sociology, anthropology and social psychology, but since rumours and gossip are believed to have been a topic of conversation since mankind first acquired the ability to speak,²⁶ for human beings gossiping is an entirely natural form of social behaviour. Since the emergence of mass media such as newspapers and magazines using the medium of paper, and radio and television using radio waves, such gossip can now quickly spread far and wide. What is more, the growth of the internet has resulted in far greater diversification of the content and sources of gossip. Furthermore, the introduction of the internet as a new means to spread gossip has not only speeded up circulation and broadened the range of circulation, it has also made it difficult to completely eradicate content once it has been made public.

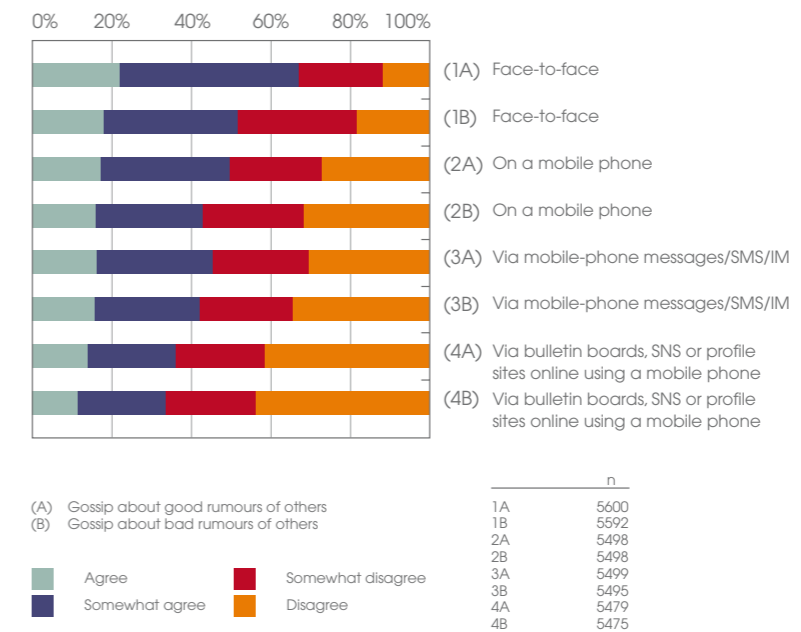
In Chapters 3 and 4, it was confirmed that for children, like adults, using mobile phones to communicate with family members and friends has become entirely routine, and based on this fact, it is conceivable that mobile phones are also used to exchange the gossip and rumours that make an appearance in routine face-to-face communication between children.

7-1 Children and the gossip environment

This chapter examines the gossip environment of children (in other words, where and how gossip about others is exchanged and how it is used), Children were asked how much gossip about others was going on around them face-to-face, on a mobile phone, via mobile phone messages, and via bulletin boards, SNS or profile sites online using a mobile phone. Figure 7-1 shows the results.

Firstly, overall the results show that around 35-65% of children said "Often" or "Sometimes" to all of the statements and at least one in three is in an environment in which there is gossip about others either verbally or in writing. A comparison of the difference in media mode, in other words, a comparison between face-to-face and mobile phone (voice, messages, bulletin boards, SNS or profile sites), shows that gossip is more commonly exchanged face-to-face, as the percentage of children saying they "Often" or "Sometimes" was around 40-60% for face-to-face and 35-50% for on a mobile phone. A comparison between bad rumours and good rumours reveals that good rumours are exchanged more frequently than bad rumours, both face-to-face and on a mobile phone (voice, messages, bulletin boards, SNS or profile sites).

Figure 7-1. Degree to which children believe a gossip environment exists



7-1-1 International comparison of the gossip environment

Figure 7-2 and Figure 7-3 show by country the percentage of children who answered "Agree" or "Somewhat agree" to the respective questions when the gossip environment of children was divided into good rumours and bad rumours.

In Japan and China, only between 10% and 30% said that both good rumours and bad rumours are exchanged, whether by mobile phone voice, messages, bulletin board, SNS or profile site online. On the other hand, in Mexico and Cyprus between 60% and 70% said that both good rumours and bad rumours are often exchanged using mobile phone voice calls and messages.

As for good rumours, although in every country almost 60% or more said that they "Agree" or "Somewhat agree" in the case of face-to-face communication, the gossip environment using mobile phones varies considerably from country to country. In Korea, India, Mexico and Cyprus there is a high level of gossip using mobile phones compared with Japan and China.

An examination of differences according to mode reveals that Mexico shows a tendency that is quite different from other countries. Whereas the other five countries show a general downward tendency (in other words, when communication environments are ranked according to level of gossip (1 being the highest), first comes face-to-face, second is mobile phone voice calls, third is mobile phone messages, and fourth is mobile phone bulletin boards, SNS or profile sites online), for Mexico, the order is completely the opposite. An examination of Mexico's good rumour environment reveals that the gossip level which was below 60% for face-to-face rises to more than 60% for mobile phone voice calls and climbs further still to 67% for mobile phone – bulletin boards, SNS or profile sites online. The results suggest that children from Mexico inhabit an environment in which there is a higher level of gossip on mobile phones than face-to-face. A comparison between good rumours and bad rumours shows that, despite a difference in level, the overall tendency is the same. The biggest gap owing to a difference in mode occurs with respect to the exchange of good gossip in China, where the level of gossip via mobile phones – bulletin boards, SNS or profile sites online – falls to around 10% compared with around 60% for face-to-face.

Figure 7-2. Children and gossiping about positive rumours about others (by country)

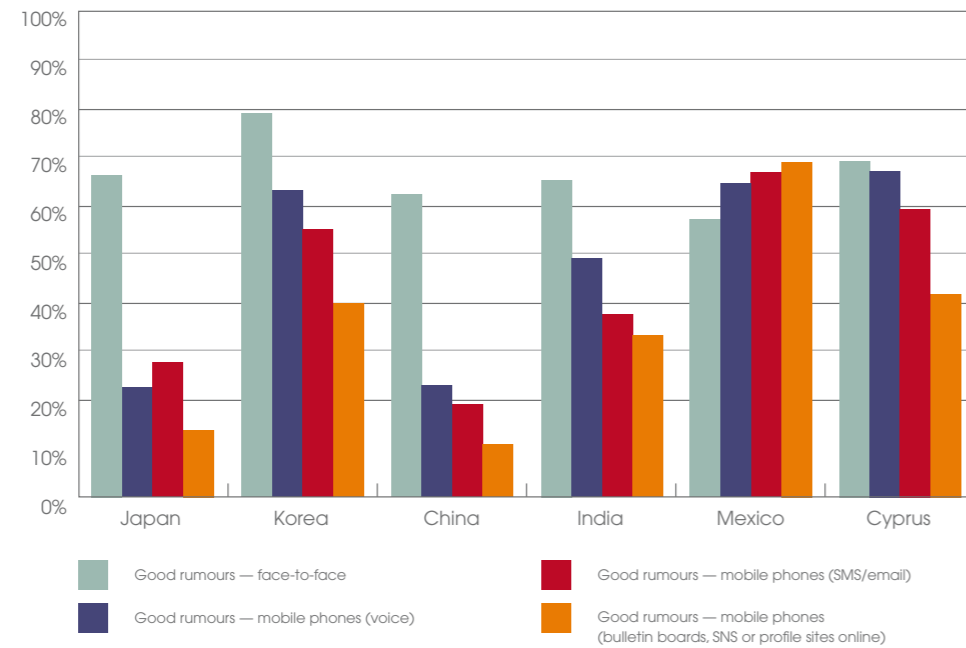
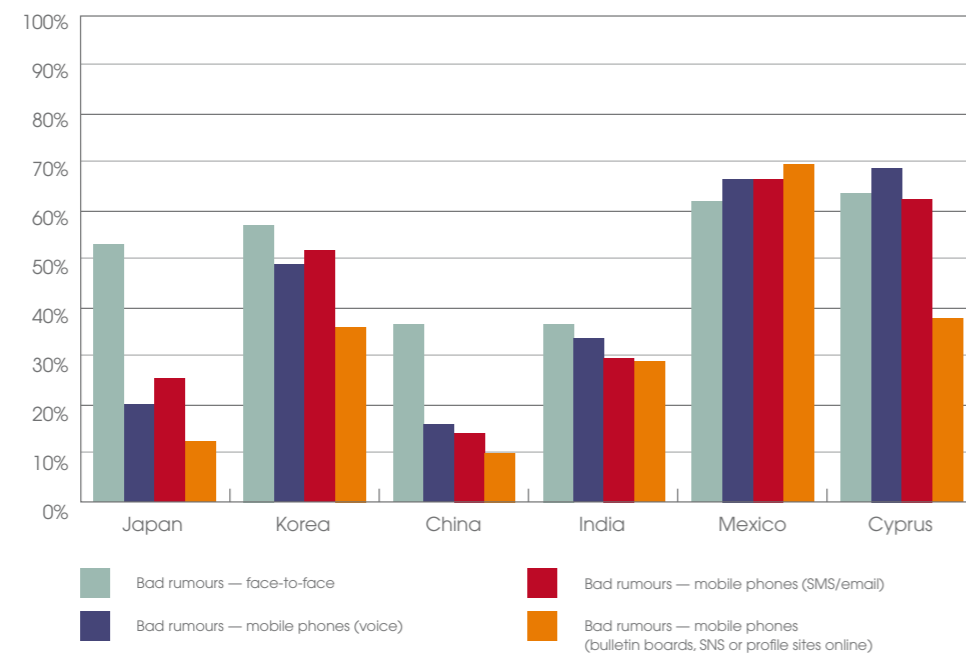


Figure 7-3. Children and gossiping about negative rumours about others (by country)



7-1-2 Comparison of gossip environment by age group

Figure 7-4 and Figure 7-5 show by age group the percentage of children who answered "Agree" and "Somewhat agree" to each of the questions when the gossip environment of children was divided into good rumours and bad rumours. The results show that generally, as age increases, an environment characterised by a high level of gossip develops, this occurs up to the 13 to 15 year age group where it seems to peak. If we focus on the 13 to 15 year age group, the level of bad rumours spread by mobile messages and the level of good rumours and bad rumours spread on bulletin boards, SNS or profile sites online is slightly higher than for the 16 to 18 year age group, and the results suggest that the 13 to 15 group uses mobiles to communicate gossip more frequently than the other age groups do.

A look back at the mobile communication environment (voice call, messages and Internet) in Figures 3-5, 6, 7 and 9 shows that generally speaking the frequency of mobile communication (voice, messages and Internet) tends to increase with age from the age of 13 years onwards and it cannot be said, therefore, that the 13 to 15 year age group inhabits an environment characterised by a higher level of mobile communication than the 16 to 18 year age group. Consequently, the results suggest that use of mobile phones to communicate gossip is especially prevalent amongst the 13 to 15 year age group.

Figure 7-4. Gossip about positive rumours about others

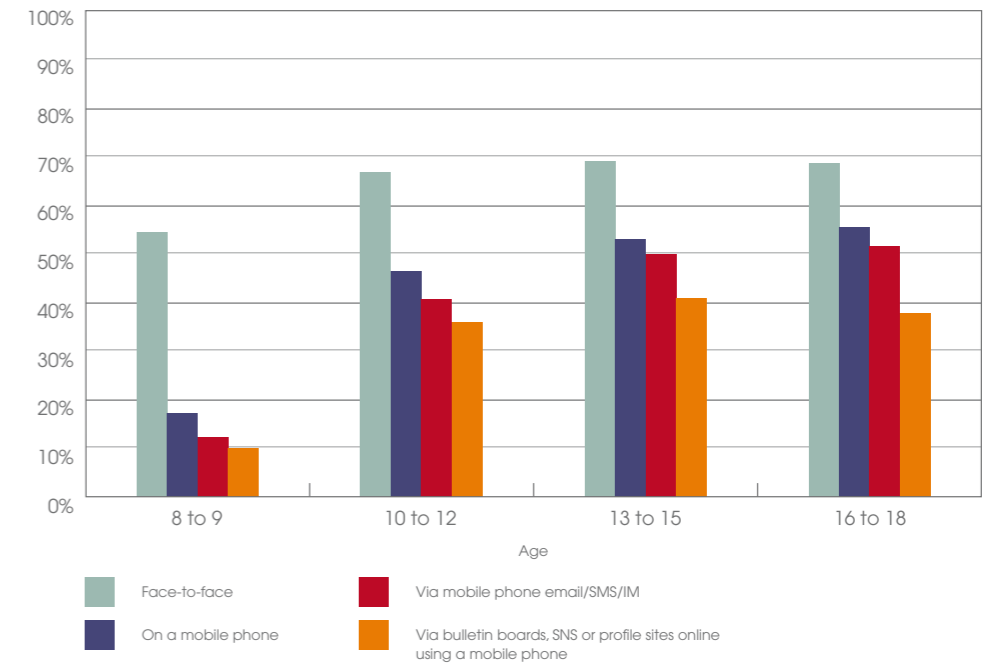
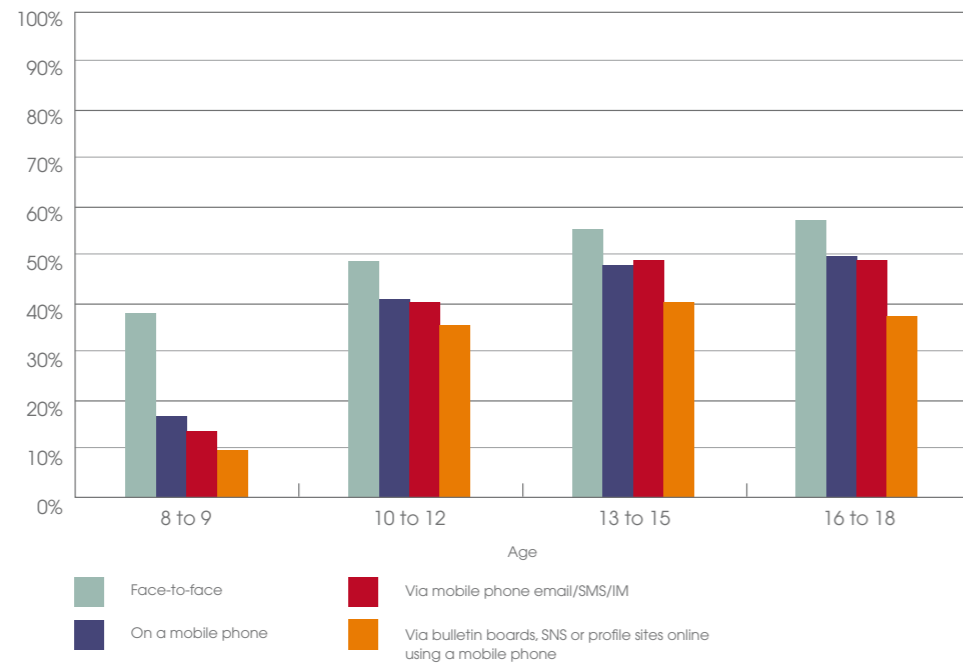


Figure 7-5. Gossip about negative rumours about others



So far we have looked at the gossip environment and rumours using mobile phones. Overall, it would be fair to say that children are in an active environment for gossip. At least one in three children find themselves in an environment where gossip is shared verbally or in writing. In terms of the content of rumour, good rumours are more active than bad rumours, in short, there are more good rumours around than negative ones. There are differences in the gossip environment depending on the media and with the exception of Mexico, face-to-face is a more active gossip environment than on mobiles. Uniquely to Mexico alone, the mobile phone environment is more active for gossip than face-to-face.

Comparison of Degree of Activity in the Communication Environment (in order of activity)

- 5 countries other than Mexico
Face-to-face > Mobile voice calls > messages > Mobile community sites
- Mexico
Mobile community sites (approx. 70%) > messages (67%) > Face-to-face (60% or less)

When comparing age groups, the face-to-face rumour environment grows livelier with rising age while the gossip environment using mobile phones is particularly active for the 13 to 15 age group compared to the 10 to 13 and 16 to 18 age groups.

7-2 Children and reputation

Although a lot of gossip and rumours are not necessarily based on objective fact, they are often a source of important information that has an impact on people's behaviour. People exchange a range of information in their daily communication and it is not difficult to imagine that children engage in close exchange of rumours about their peers with the friends that are their most frequent communication partners.

7-2-1 International comparison of reputation

One would imagine that sensitivity to reputation differs from country to country. Table 7-1 lists questions about well-thought-of people (popular people) and badly-thought-of people (disliked people) at children's school or place of work.

Table 7-1. Questions to measure children's sensitivity about reputation

Items

- I can think of well-thought-of people (popular people) among people at my school or place of work
- I can think of badly-thought-of people (disliked people) among people at my school or place of work
- People at my school or place of work usually think of the same well-thought-of people (popular people)
- People at my school or place of work usually think of the same badly-thought-of people (disliked people)
- I try to spend time with and associate with well-thought-of people (popular people) as much as possible
- I try not to spend time with or associate with badly-thought-of people (disliked people) as much as possible

Table 7-2. Average score of sensitivity about reputation (by country)

Japan	Korea	China	India	Mexico	Cyprus	Total	
2.9	2.9	3.0	3.0	2.9	3.1	2.9	n=5580

Table 7-2 shows average scores calculated by dividing the sum of the four-point scales of the six items in Table 7-1 by the number of items. Since "Agree" scores 4 and "Disagree" scores 1, the greater the agreement, the higher the score. ANOVA tests indicated significant differences among the mean values across countries at 5% level, which means that there was a significant difference depending on the country, but the difference was not as big as one might expect. In other words, the results suggest that there is not such a big difference in children's sensitivity towards reputation regardless of which country they come from.

Next, Figure 7-6 shows by country the percentage of children who answered "Agree" or "Somewhat agree" to the same six questions to confirm whether each country has its own characteristics depending on items.

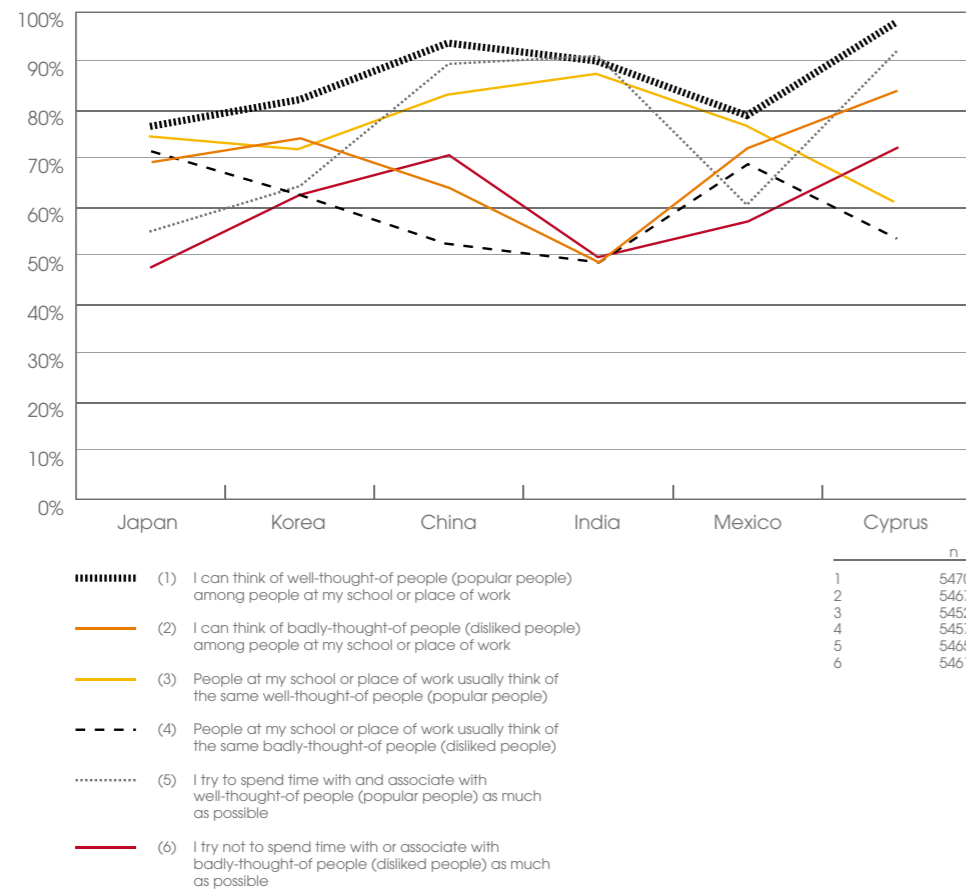
In response to all of the six questions, almost 50% or more of the children answered "Agree" or "Somewhat agree." Overall, assessments about well-thought-of people scored higher than assessments about badly-thought-of people. In particular, in China and India there was a definite divide between well-thought-of assessments and badly-thought-of assessments, and this trend was remarkably pronounced in India, where well-thought-of assessments scored around 90% and badly-thought-of assessments scored around 50%.



7— Mobile Phones, Gossip and Reputation

27 Cass Sunstein (2003) Is the Internet really a blessing for democracy? Internet makes it possible for people who have similar opinions or thoughts about specific assertions or events to communicate and gather in unspecified large numbers simultaneously. Cybercascade is a phenomenon whereby gatherings of people engage as a group in extreme speech and activity.

Figure 7-6. Children's sensitivity to reputation (by country)



The difference between age groups was also examined but this produced no significant results.

7-2-2 Mobile phone use and reputation

Let us examine the relationship between mobile phone use and sensitivity to reputation. The correlation between sensitivity to reputation and possession of a mobile phone, message frequency and voice call frequency on a mobile phone, mobile internet use and frequency of mobile internet use was examined, and although there was a significant difference in terms of possession of a mobile phone, message frequency and voice call frequency on a mobile phone, none of the results showed any major difference.

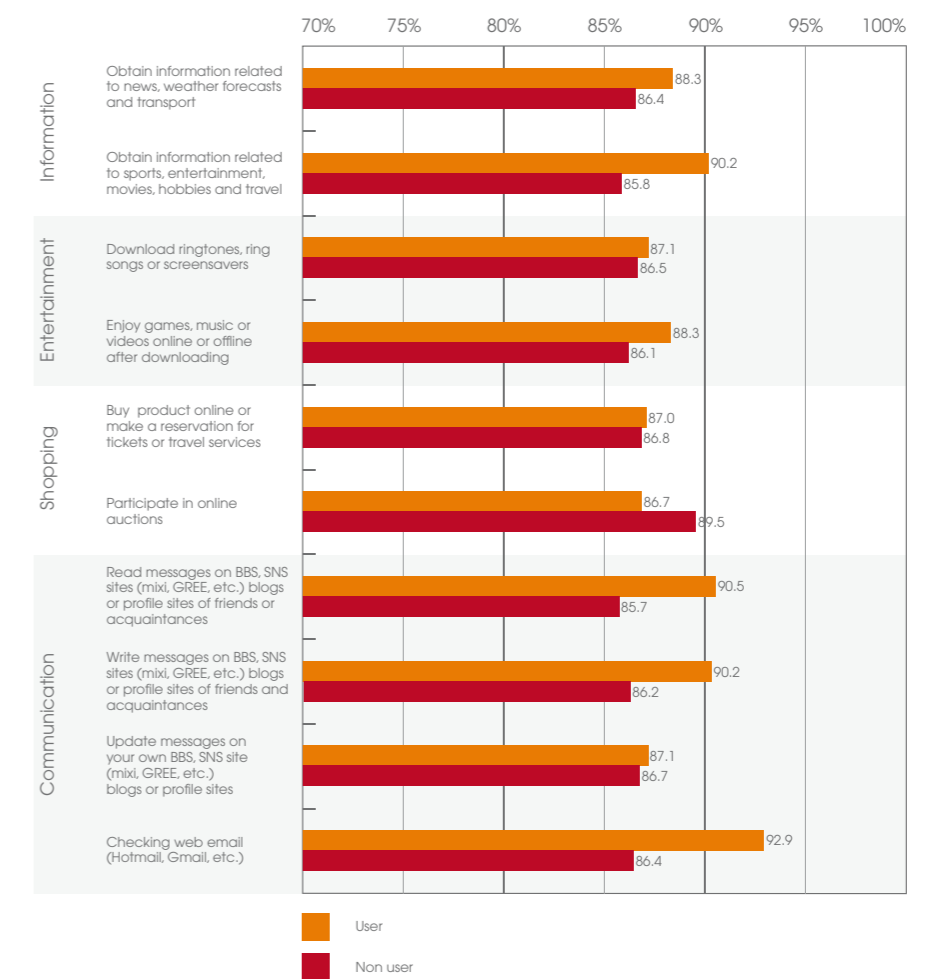
Next, we focused on mobile communications that use the internet. Mobile communications can be divided into messages as well as communication using community sites but first let us confirm the differences between them.

Although messaging enables both 1 : n and n : n exchange as well as 1 : 1 exchange, the number of messages, the number of participants and the visibility of messages permitted by bulletin boards, SNS and profile sites online is more user-friendly, particularly in the event of simultaneous use by a large number of people. The most commonly used community sites are BBS, SNS and blogs, and all of these are types of communication whereby contributors make a series of entries and generally past entries can be viewed in chronological order or by topic. Furthermore, on bulletin boards, SNS and profile sites online, it is also conceivable that a cybercascade²⁷ could occur. When considering rumours and mobile phone use, we need to pay particular attention to these features on community sites.

And so this section considers the relationship between reputation and children's internet use, taking into consideration the content of such internet use. Internet use was classified according to its purpose into information gathering, entertainment, transactional and communication (interaction with others). Figures 7-7 and 7-8 show the results of our consideration of these respective types of use from the viewpoint of sensitivity about reputation.

Figure 7-7 shows the percentage of users and non-users of the internet for each purpose who, in response to the statement "I can think of well-thought of people (popular people) among people at my school or place of work," responded "Agree" or "Somewhat Agree." For all items except participation in online auctions, the results for users are higher than the results for non-users. Also when it comes to communication type activities the gap between users and non-users is comparatively large, suggesting that users are more sensitive about reputation than non-users.

Figure 7-7. Comparison of sensitivity about positive reputation between mobile internet users and non-users (by purpose)



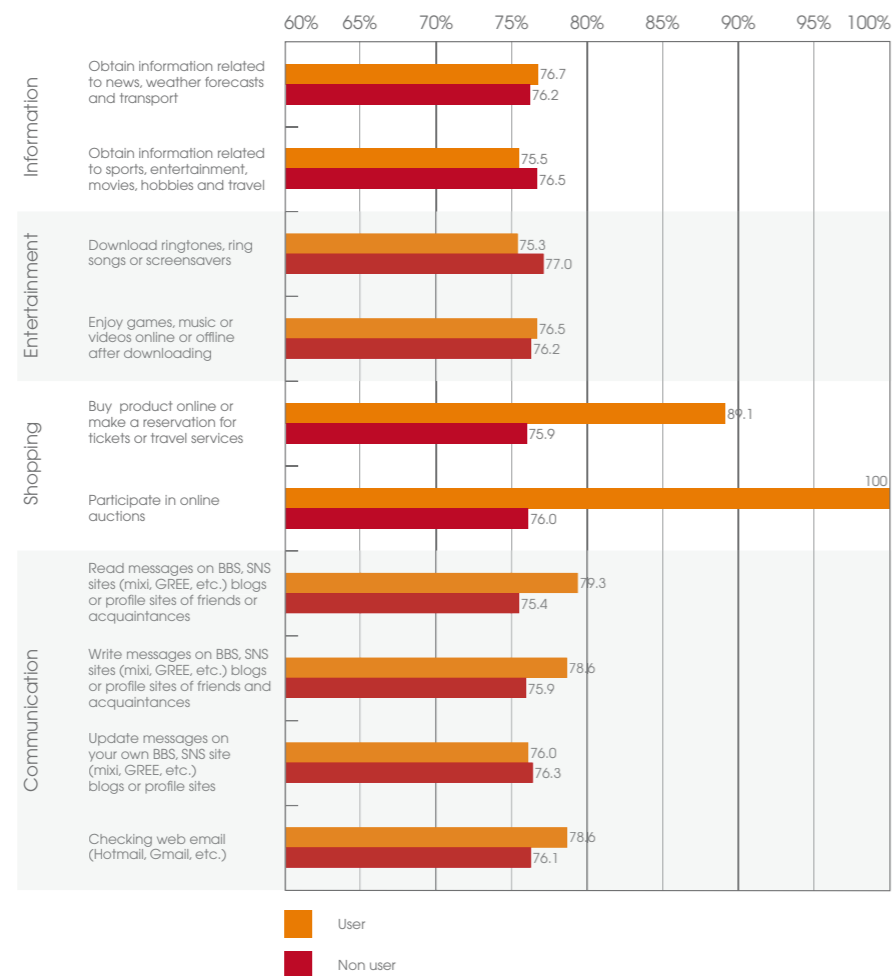
“I can think of well-thought-of people (popular people) among people at my school or place of work”

Figure 7-8 shows the same for “I can think of badly-thought-of people (disliked people) among people at my school or place of work.” In most of the items, the results for users are slightly higher than the results for non-users.

One point to be noted is that 100% of the participants of online auctions responded “Agree” or “Somewhat Agree,” suggesting that users of online auctions are highly sensitive to negative reputation.

“I can think of badly-thought-of people (disliked people) among people at my school or place of work”

Figure 7-8. Comparison of sensitivity about negative reputation between mobile internet users and non-users (by purpose)



Next, Figure 7-9 shows the percentage of users and non-users of the internet for each purpose who, in response to the statement “I try to spend time with and associate with well-thought-of people (popular people) as much as possible, answered “Agree” or “Somewhat agree”. No specific trend was evident from the results. In other words, there was no

evidence that users are more inclined than non-users to spend time with well-thought-of people.

“I try to spend time with and associate with well-thought-of people (popular people) as much as possible”

Figure 7-9. Comparison of sensitivity about positive reputation between mobile internet users and non-users (by purpose)

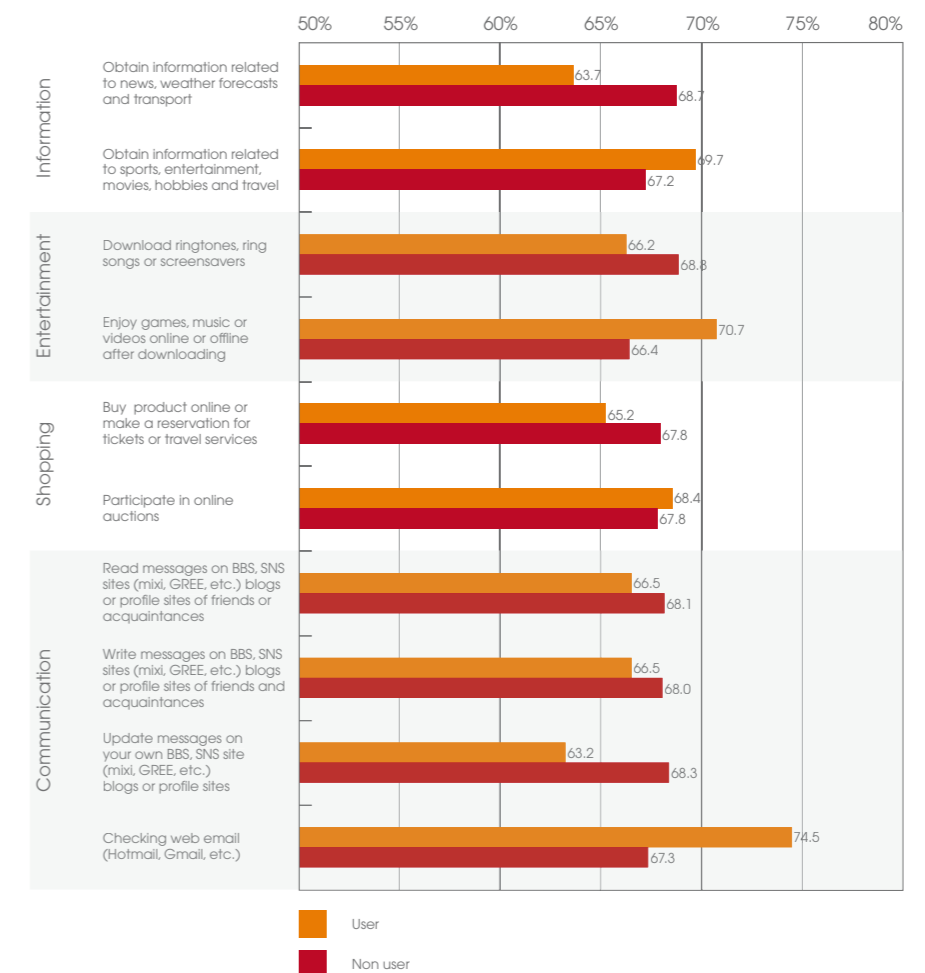
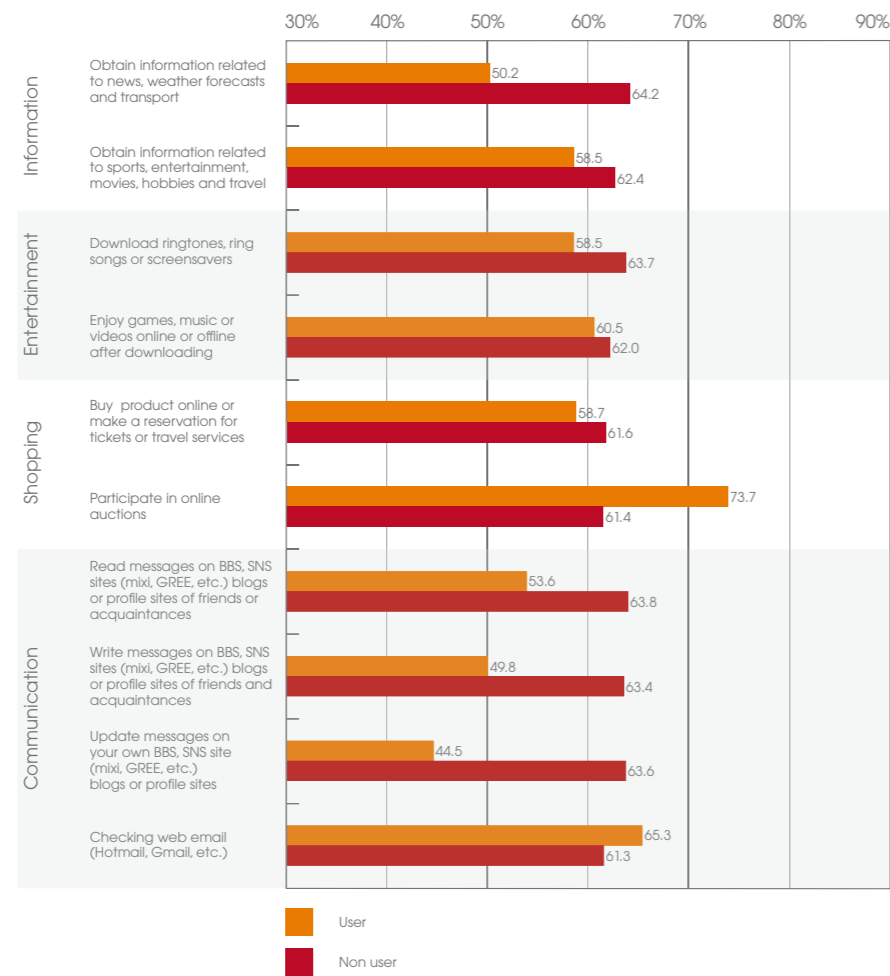


Figure 7-10 shows the same for “I try not to spend time with and associate with badly-thought-of people (disliked people) as much as possible.” In many items, the results for users are higher than the results for non-users, however, only a small difference exists between them. When we look at the results for auction participants in Figure 7-10, the results

for users are higher than the results for non-users but the gap is not remarkable (online users: 73.7%, non users: 61.4%.)

“I try to spend time with and associate with badly-thought-of people (disliked people) as much as possible”

Figure 7-10. Comparison of sensitive about negative reputation between mobile internet users and non-users (by purpose)



²⁸ Cyber-bullying is bullying via the internet or mobile phones. In other words, messages, bulletin boards, SNS or profile sites online. More specifically, the main forms cyber-bullying takes are; verbal abuse, offensive comments, photographs or sometimes videos sent to a specific person or posted online, or the deliberate exclusion of someone from a bulletin board, SNS or profile site online. Although the victims of cyber-bullying are not always children, (like traditional bullying not carried out over the internet) cyber-bullying amongst children is the main focus of public attention.

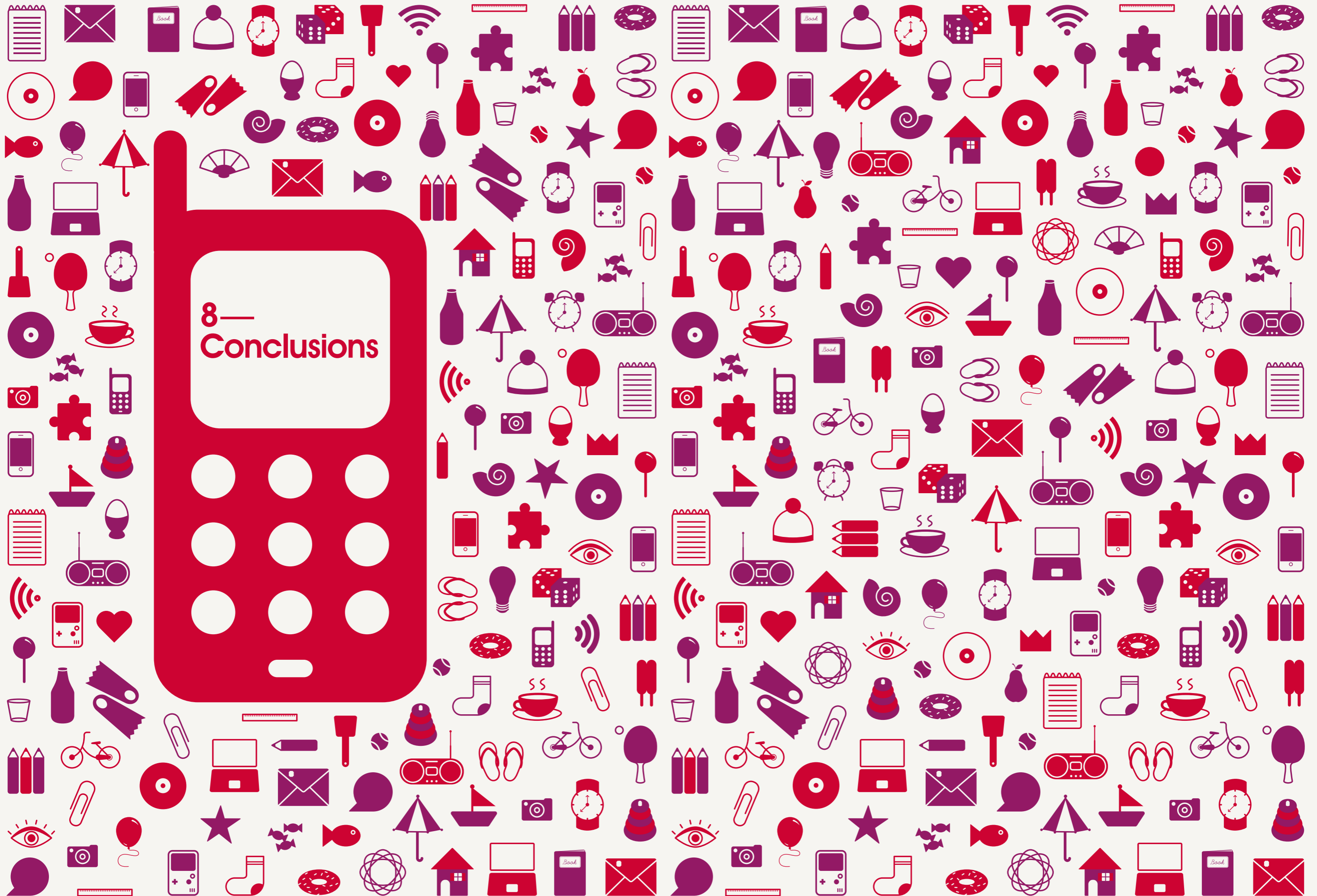
The above considers mobile phones and reputation. There are positive and negative aspects of sensitivity to reputation, and we found differences between users and non-users of community sites as well as between mobile phone users. Although significant differences were found when confirming correlation with mobile phone use (possession or non-possession of mobile phones, frequency of sending messages by mobile phone, frequency of voice calls, user or non-use of mobile internet), the differences were not conspicuous. In short, children who use mobile phones are somewhat sensitive to reputation. When focusing on internet use, users of communication services are more sensitive to reputation than non-users.

“Cyber-bullying”²⁸ is considered a problem in many countries including the United States, Canada, EU countries, Japan and Korea, and many parents and teachers have expressed concern. For example, in a survey of parents from 27 European countries conducted in 2008 by the Safer Internet Programme, in response to the question “Are you worried that

your children could be bullied online by other children?”, around 37% of parents answered “Very worried” and around 17% answered “Rather worried.” Cyber-bullying is one of the negative reputational effects of using messages and community sites.

This chapter clarified certain facts about gossip and reputation within the everyday communication of young mobile phone users. Through the accumulation of research capturing the reality of such children and the features of each type of media we hope to better understand how to draw out a positive assessment of gossip and reputation, suppressing negative influences, and to link this to practical initiatives to address issues such as cyberbullying.





8 —
Conclusions

Conclusions

This report has looked at the status of utilisation of mobile phones by children in six countries (Japan, Korea, China, India, Mexico and Cyprus) and the effect that this has on children. The conclusions are as follows:

1. The countries with the highest rates of mobile phone ownership by children are Cyprus and Korea. In both of these countries, ownership increases from upper primary school through to the beginning of junior high school, so that by age thirteen more than 90% of children have mobile phones. In the other four countries (Japan, China, India and Mexico) the increase in ownership is not so rapid. In these countries about 50% of children have a mobile phone by age thirteen, with the ownership rate then increasing to approach 80% or more by senior high school (age 18).

2. The usage frequency of mobile messaging (MMS, SMS, IM) is about 20 per day in countries with low rates and about 60 per day in countries with high rates. The countries with particularly high usage rates for messaging are Korea and Cyprus. In these two countries the number of messages sent and received reaches 40 to 60 per day from junior high school onwards. Japan comes next with about 30 messages per day, with the remaining countries averaging about 20 messages per day. For phone calls, on the other hand, the number of calls made per day is quite high in Cyprus at eight or more calls per day, whereas in Japan this rate is particularly low at less than two calls per day. In the other four countries, the number of calls per day ranges between about four and six. Dividing the number of messages by the number of calls to calculate the number of messages as a multiple of the number of calls gives a multiple of between 15 and 20 for Japan as compared to a multiple of about five for other countries. Korea also has quite a high multiple, with ten times as many messages as calls, indicating that in Japan and Korea there tends to be a bias towards messages.

3. For call frequencies, there is a trend where the call frequencies for children are high in countries where the call frequency for parents is high, which can be interpreted as meaning that children are influenced by their parents' behaviour. However, for messages the correlation to the relationship with parents is weak – in Cyprus, Korea and Japan (where the message frequency is high) there is no trend suggesting that message frequency for parents is also high. It is conceivable that the children's generation has discovered a new way of using messages unrelated to their parents' use.

4. The country where using the Internet from mobile phones is most popular is Japan, followed by China and Korea. Internet use from mobile phones is limited in the other three countries. In Japan, Internet use from mobile phones increases sharply from about the beginning of junior high school, so that by the second year of junior high school (age 14) more than 70% of children are already using the Internet from their mobile phones. In China and Korea the mobile Internet usage rate is about 30% to 40%, while in the other three countries it is no more than 20%. Further differences emerge when we look at usage frequency, with Japanese children using the Internet from their mobile phone as many as 40 times per week in contrast to other countries, where children use the Internet from their mobile phone about five to 15 times per week. It is conceivable that this difference in usage frequency has arisen because in Japan children frequently use Internet-based communication sites, such as social networking sites and bulletin boards.

5. As for the rules that parents impose on their children regarding mobile phone usage, the most common rule is to establish an upper limit for usage charges. There is considerable variation between countries, but between 50% and 90% of parents adopt this practice. However, in India parents impose rules far less often than in other countries, one possible reason being that in India it is common for mobile phones to be shared.

6. Looking at mobile phone communication between parents and children, the first point to note is that phone calls are more common than messages. In contrast to communications with friends, where messages are overwhelmingly more common, voice calls are central in communications between parents and children. This observation is particularly apparent in India, where about 70% of children say that they do not exchange messages with their parents, a figure that stands out as higher than for other countries.

Comparing mothers and fathers, children communicate with their mothers by mobile phone more often than with their fathers. In Japan and Korea in particular, the frequency of message and phone call communications with fathers is no more than half of the frequency for communications with mothers. However, India is an exception in that the frequency of communications with fathers is about the same as for with mothers.

7. Investigating the connection between mobile phone usage and children's degree of trust in their parents, we found almost no relationship between mobile phone ownership and trust in parents. However, there is a positive correlation between the frequency of contact with parents and the degree of trust. In other words, children who have frequent contact with their parents, whether by calls, mail, or face-to-face contact tend to trust their parents more.

8. The method used most often for contact with friends is messaging, which overwhelms phone calls in terms of frequency. This trend, which holds for all of the countries in the study, is in contrast to the parent-child relationship, where phone calls are more common. For Japan, Korea and Cyprus in particular, the number of messaging communications with friends was five times as high as the number of voice calls, indicating that messaging plays the key role in communications with friends. However, India was an exception in that more than 50% of children say that they do not exchange messages with their close friends, exhibiting a trend that differs from that found in other countries. Clearly the position of

mobile messaging in India is different to that in other countries, and it is supposed that one reason for this is that in India many mobile phones are shared.

On the other hand, when it comes to the frequency of phone calls between friends, the rate in Japan is lower than in other countries. Although 40% of Korean children and 60% of Cypriot children say that they speak with their best friend on the phone almost every day, in Japan this is true of only about 10% of children. Unlike other countries, in Japan computer-based email (as opposed to email based on mobile phones) is not used very often, and so there is a bias towards mobile phone mail as the preferred means of communication with friends.

For both mobile messaging and phone calls, there is a tendency for communications to concentrate on one particular friend to a certain extent, except in India and Mexico, where the tendency is for children to interact equally with a wide range of friends rather than concentrating on a particular person.

9. When we verified whether mobile phone communications influence trends towards heterogeneity and homogeneity (that is, whether mobile phone communications tend to strengthen relationships with friends that are similar to oneself or strengthen relationships with friends that are different to oneself), we observed a simultaneous influence on both trends. If anything, the trend towards heterogeneity can be observed more clearly. There is a view that mobile phones increase communications with only a small group of people, with the result that friends become homogenous and children become intolerant of heterogeneity, but no such tendency was observed in this study.

8 Conclusions

10. In order to examine the kind of influence that mobile phone usage has on children's social attitudes, we investigated the influence on six types of social attitude concepts (reciprocity, general trust, innocence, empathy, an expedient view of humanity, and a preference for privacy). This investigation found positive influences for some countries, such as increased reciprocity and general trust. However, there were also some negative results, and so we cannot reach a firm conclusion. A more detailed investigation would need to be conducted in order to reach a firm conclusion.

11. Exchanging gossip via mobile communications (phone calls, messages or Internet communications) was something that took place in all countries. Looking at different age groups, gossip was particularly prevalent in the 13 to 15 year-old age bracket. Looking at the results on a country-by-country basis, Japan and China had the lowest rate of people who gossip via mobile communications at 10% to 30%, whereas Mexico and Cyprus had the highest rates at 60% to 70%.

In order to explore the links between children gossiping via mobile phone and "cyberbullying", we investigated whether children become more sensitive to criticism or reputation as the frequency of mobile communication (phone calls, messages, or Internet communications) increases. However, within the scope of the investigation, we found no trend whereby children who make active use of mobile communications become more sensitive to criticism or reputation.

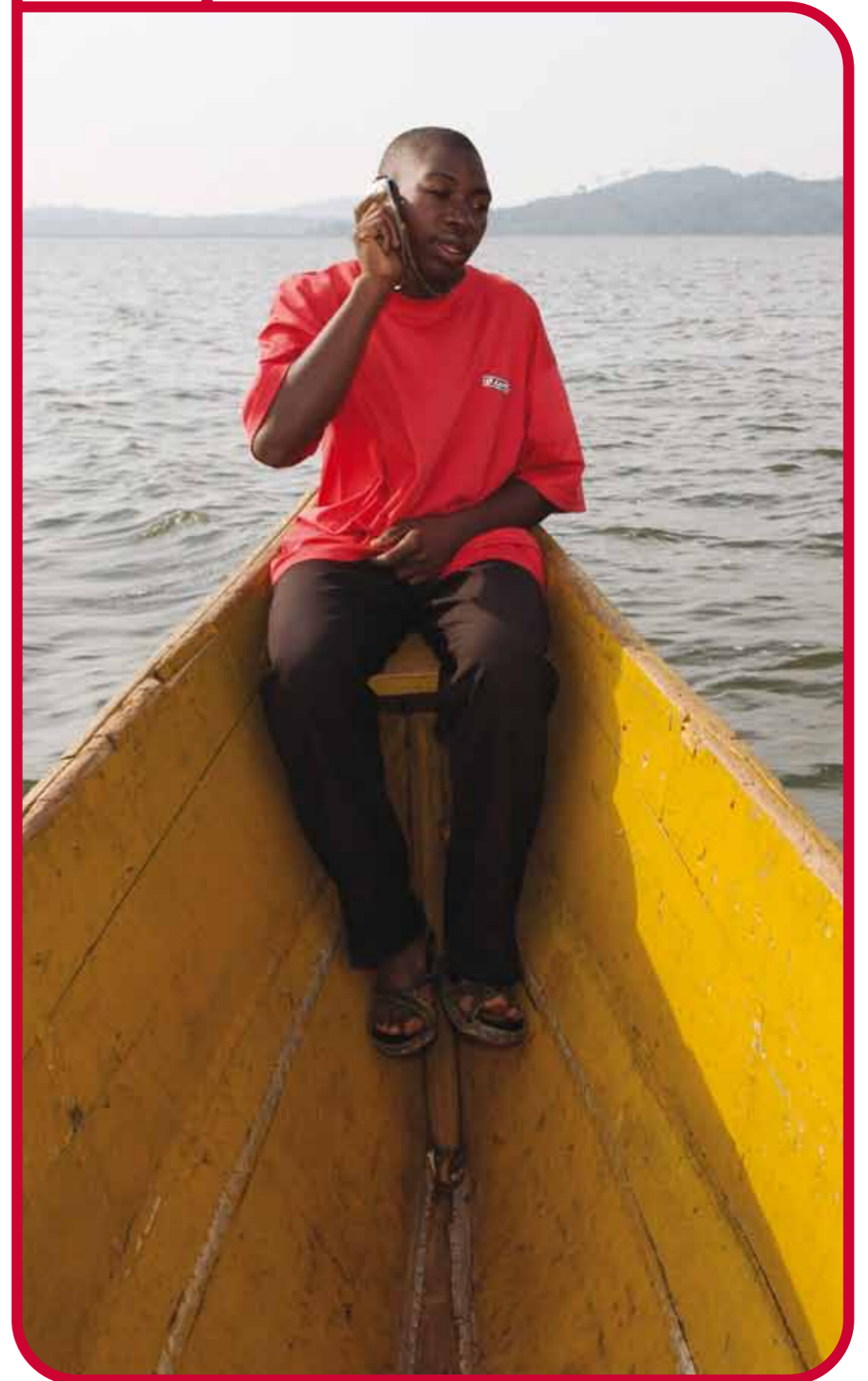
12. Looking at different countries, the main features for Japan are that mobile messaging is used far more often than phone calls; that the rate of mobile Internet usage is high, and that mobile phone email is central, with computer-based email not being used very much. These features are characteristic to Japan, and are about double the results for other countries.

The characteristic features for Korea are the high rate of mobile phone ownership, which reaches 90% by the end of the first year of junior high school, and the high frequency of mobile messaging usage. Another feature is that parents in Korea are not particularly worried about their children's mobile phone usage.

For Cyprus, mobile phone ownership starts even earlier than for Korea, with more than 90% of children already owning a mobile phone by the time they start junior high school. The frequency of mail usage is also high like in Korea, and the frequency of phone calls is the highest of any of the six countries. The frequency of communications with parents (including fathers) is also high.

For India, messaging is used in a way that is different to other countries, with mail not being used very often, children not exchanging messages with parents or close friends, and the volume of messaging usage not increasing as children get older. It can be inferred that these trends are due to the large number of shared mobile phones in India (70% of children mobile phone owners share his/her phone with others.)

In China and Mexico, mobile phone usage is relatively standard, with no outstanding features. The only characteristic features found that might be mentioned are the facts that Chinese children give communicating with their fathers as a reason for having a mobile phone, and that Mexican children tend to use their mobile phones to communicate with a wide range of people, rather than concentrating on a small number of friends.



Appendix



Appendix 1: Survey Methodology

1-1 Japan

The survey questionnaires were distributed by drop-off to 1,700 pairs of children between the ages of eight and 18 and their guardians who lived in Japan. Valid responses were collected from 1002 pairs (response rate 58.9). A two-stage stratified random sampling method was used to extract 100 primary sampling units nationwide.

First, all the prefectures were classified into 11 areas. Second, in each of these 11 areas, municipalities were classified into four categories based on their population size. Based on these two categories, all the municipalities were stratified in 62 strata; 11*4 + 18 (cities of 500,000 or more, granted special rights by government ordinance) = 62.

Next, primary sampling units (PSUs) were set as the same as those of the national census in 2005, and 100 PSUs were sampled from all the strata with probability-proportional-to-size (PPS) selection. From each PSU, respondents (children between the ages of eight and 18) were randomly sampled based on the Basic Resident Register so that 17 respondents in each PSU are allocated, which reflects the marginal distribution of the census. As a result, the total number of respondents in 100 PSUs was set as shown in Table 1-1.

1-2 Korea

From five representative cities which are Seoul, Busan, Daegu, Kwangju and Taejon, 1000 couples of parents and their children were sampled proportionately with probability-proportional-to-size (PPS) selection. The population of children aged 10-18 in Korea is shown in Table 1-2.

Table 1-1. Age distribution of children surveyed in Japan

School	Boy	Girl
Primary School Student (6-12 year-old)	310	310
Junior High School Student (12-15 year-old)	215	215
High School Student and Others (15-18 year-old)	325	325
Total	850	850

Table 1-2. Population of children aged 10-18 in Korea

Age	Seoul	Pusan	Daegu	Kwangju	Taejon
10	105,917	37,200	30,978	21,686	20,517
11	110,396	39,597	39,597	22,251	21,084
12	115,722	41,731	41,731	23,479	22,021
13	120,745	44,722	44,722	23,959	22,448
14	124,784	46,410	46,410	24,068	23,142
15	128,259	47,688	47,688	24,355	23,062
16	128,995	48,917	48,917	23,584	22,753
17	128,298	48,371	48,371	22,703	22,279
18	126,059	47,074	47,074	21,385	21,451

Quota sampling was applied. The quotas include child's gender, cities, and child's age. Interviewers were assigned to each geographic area where they visited respondents' homes door to door randomly to complete the quota of the area. The response rate was 7%.

1-3 China

A two-stage stratified random sampling method was used to extract 800 respondents. In China, most researchers cover tier 1, 2 and three cities. The same rule was applied in this research. Tier 1 contains only 3 cities; they are Beijing, Shanghai and Guangzhou. Tier 2 contains provincial cities and tier three contains prefecture cities. Based on their importance to the objective of this research, we chose three tier-1 cities, three tier-2 cities and two tier-3 cities, as shown in Table 1-4.

Table 1-3. Age distribution of children surveyed in Korea

Age	Seoul	Pusan	Daegu	Kwangju	Taejon
10	41	10	20	2	8
11	36	9	12	6	3
12	53	16	10	6	7
13	68	22	22	10	9
14	80	50	19	28	23
15	41	10	15	6	2
16	69	16	22	12	12
17	62	29	14	7	8
18	40	29	10	12	14
Total	490	191	144	89	86

Table 1-4. Cities surveyed in China

	City	Number of sample cities
Tier 1	Beijing Shanghai Guangzhou	3
Tier 2	Provincial cities	3
Tier 3	Prefecture cities	2

Appendix 1: Survey Methodology

29 When a family without a child in the target age was selected, the interviewer skipped the family. When the response rate was calculated, family without a child was included in the denominator.

30 1 lakh = 100 thousand

31 SEC is based on education & occupation which is widely accepted in India.

In each city, 10 PSUs were randomly selected. In each PSU, 10 respondents were randomly selected. By this procedure, all the households had the same chance to be selected as respondents. The survey was privately conducted in face-to-face interviews in respondents' homes. The response rate was approximately 12%²⁹.

1-4 India

The country was divided into four areas. In each area all metro towns (population more than 40 lakh³⁰) were selected. Further, from each area one tier 1 (10 lakh to 40 lakh) city

was selected. The selected cities were the biggest Indian cities and consisted of Metro and non-Metros. A sample amongst these cities suggests fairly decent representation of Urban India across socio-economic strata. In each city, stratified random sampling was used to select households (families). Each city was divided into five areas and ten to 25 households were selected depending on population size and Socio Economic Classification (SEC)³¹ for each city. The SEC is given in table 1-5.

Table 1-5. Socio economic classification of consumers in urban India: Education and occupation is of the chief wage earner in the household

Occupation	Illiterate	School: up to 4 years	School: 5-9 years	SSC or HSC	Some College but not graduate	Graduate — General	Graduate — Professional
Unskilled workers	E2	E2	E1	D	D	D	D
Skilled workers	E2	E1	D	C	C	B2	B2
Petty traders	E2	D	D	C	C	B2	B2
Shop owners	D	D	C	B2	B1	A2	A2
Businessmen or Industrialist with no. Of employees — None	D	C	B2	B1	A2	A2	A1
Businessmen or Industrialist with no. Of employees — 1-9	C	B2	B2	B1	A2	A1	A1
Businessmen or Industrialist with no. Of employees — 10 +	B1	B1	A2	A2	A1	A1	A1
Self-employed Professionals	D	D	D	B2	B1	A2	A1
Clerical/ Salesmen	D	D	D	C	B2	B1	B1
Supervisory level	D	D	C	C	B2	B1	A2
Officer/ Executives — Junior	C	C	C	B2	B1	A2	A2
Officers/ Executives — Middle or Senior	B1	B1	B1	B1	A2	A1	A1

The households were selected randomly from SEC A, SEC B and SEC C using the electoral roll of that area as a sampling frame. SEC representation in the survey is in proportion to that of the urban population in the census. Representation of SEC A, SEC B, SEC C was obtained in the survey. The cities surveyed and proportion of SEC in each city are shown in Tables 1-6 and 1-7.

The interviews were conducted at the respondents' homes. The interview of the child was conducted in the presence of the parent, ensuring that the responses were not influenced. The face-to-face interviews were conducted using pen and paper in all cities. At a response rate of 24%, close to 4,200 households were contacted in order to complete 1,004 interviews.

Table 1-6.

City	Zone	City type	Population (2001 census)	Population of Children (10-18 year old, census 2001)	Sample Covered
Delhi	North	Metro	12,877,470	2,313,994	202
Mumbai	West	Metro	16,434,386	3,072,218	200
Kolkata	East	Metro	13,205,697	2,579,243	101
Bangalore	South	Metro	5,701,446	927,985	103
Hyderabad	South	Metro	5,742,036	938,164	100
Chennai	South	Metro	6,560,242	1,148,133	98
Ludhiana	North	Tier 1	1,398,467	295,562	50
Patna	East	Tier 1	1,697,976	357,456	50
Pune	West	Tier 1	3,760,636	732,741	50
Cochin	South	Tier 1	1,355,972	196,432	50
Total			68,734,328	12,561,928	1004

Table 1-7.

City	SEC A	SEC B	SEC C
Delhi	33	34	33
Mumbai	22	33	46
Bangalore	20	29	51
Kolkata	25	39	37
Hyderabad	20	34	46
Chennai	18	34	48
Ludhiana	22	36	42
Patna	26	40	34
Pune	12	26	62
Cochin	22	40	38

Unit=%

Appendix 1: Survey Methodology

32 DF stands for Mexico City (Spanish: Ciudad de México, México, D.F.)

1-5 Mexico

The country was divided into four geographical areas. Then three representative urban cities, Nuevo León (Monterrey), Jalisco (Guadalajara) and Mexico City, were chosen. As a representative city of the southeastern part of the country, Mérida (Yucatán) was also chosen.

Nuevo León, Monterrey	North
Jalisco, Guadalajara	West
Mexico City	Center
Mérida, Yucatán	Southeast

In each city, a three-stage stratified random sample of couples comprising a parent/guardian and a 10-to-18-year-old child was extracted. The stratification was based on the socio-economic level of households within cities.

Four different socio-economic levels were covered: C+, C, D+ and D. Quota sampling was conducted based on the marginal distribution of gender and age in the census, and the distribution of socio-economic level in each city from the AMAI (Mexican Association of Research Agencies) criteria, as shown in Table 1-8.

Using INEGI (National Institute of Statistics and Geography) and AGEBS (Basic Geostatistics Areas,) targeting block, geographic area and home to visit were chosen. The interviews were conducted by interviewers door to door with systematic skip of three houses.

In Mexico there are 19,271,208 children between 10 and 18 years old, and in the cities selected the population is 5,474,038 so with the cities selected we covered almost 30% of the population between 10 and 18 years old. The response rate for the survey was 4.5%.

1-6 Cyprus

A two-stage stratified random sampling method was used. The response rate was 21.3%. For the purposes of sample selection, Cyprus was divided into five strata (all major districts of the island). Subsequently, each stratum was divided into urban and rural, based on the latest demographic breakdown provided by the latest Population Census (2001) available from the Statistical Service of the Republic of Cyprus. Within each stratum, all households had an equal chance of being selected, following the use of the Probability Proportionate to Size (PPS) technique for deciding the number of respondents in each stratum. Eligible respondents within each household – randomly selected – were included in a further randomised selection procedure, whereby the respondent was randomly selected (next birthday method). In cases where the pre-selected person was not available, five more attempts were made to contact him/her. The telephone penetration within Cypriot households is over 99%, thus the Official telephone directory (compiled by Cyprus Telecommunications Authority) was used as a frame. A specialised software database automatically provide the selection of households to be interviewed with random call generation. The Statistical Service of the Republic of Cyprus makes estimate updates for the population every year. The latest published estimation is from 2005 (766,400).

Table 1-8.

Socioeconomic Level	Total Population over 400,000 inhabitants	DF ³² and metropolitan area	Guadalajara	Monterrey	Mérida
			A/B	7.8	7.3
C+	13.6	10.8	15.0	15.7	13.7
C	16.9	14.7	20.1	18.0	17.0
D+	36.3	40.5	39.7	31.9	36.4
D	14.6	12.9	11.3	19.1	15.0
E	10.8	13.8	6.0	3.4	10.2

Unit=%

Table 1-9. The estimated size of the total population in Cyprus

Area	Nicosia	Limassol	Larnaca	Famagusta	Paphos	Total
Urban	224,500	176,900	79,000	–	52,800	533,200
Rural	78,100	43,000	49,100	42,200	20,800	233,200
Total	302,600	219,900	128,100	42,200	73,600	766,400

Table 1-10. The size and definition of each stratum

Area	Nicosia	Limassol	Larnaca	Famagusta	Paphos	Total
Urban	235	185	83	–	55	558
Rural	80	44	50	45	23	242
Total	315	229	133	45	78	800

Appendix 2: Summaries of Country Reports

33 M-wallet stands for Mobile Wallet or Wallet Mobile. It is mobile payment system which is much like the ever-popular debit card. M-wallet includes electronic money, credit card, identity card, loyalty card or fare collection of public transits (including trains, buses, and airplanes.)

2-1 Japan

As of 2009, Japan's mobile phone penetration is around 90%. 3G users accounted for about 86% of total mobile phone users. Mobile phone email (instead of SMS) and mobile internet is used daily by people in a wide age range. M-wallet³³ and mobile TV are becoming popular.

For the elementary school age group, the ownership percentage is in the 10% to 20% range and does not change much, but at the junior high school level (starting at age 12), the percentage steadily rises from 30% to almost 50%, and from the start of high school (age 15 onwards), it reaches the 80% to 90% range. Once children reach the age of 14, the number of mobile emails increases dramatically and there is not much change afterwards. In other words, there is no significant difference between the number of mobile emails sent by 14-year-olds and 18-year-olds.

For either mobile voice calls, mobile emails or face-to-face, children have more interaction with mothers than with fathers. About 50% of children talked to their mother at least two to three times a week, while about 25% talked to their father that often. About 50% of children communicate by mobile email with their mother at least 2 to 3 times a week, while about 20% communicate with their father that often. With respect to overall communication with fathers, the frequency of face-to-face conversation and mobile phone-based conversation decreases as children's age increases, while the frequency of mobile phone emails remains stable and does not vary as age increases.

Mobile phone email is used more often by children for communicating with their friends than with their parents. Children feel that their mobile phone provides support in terms of "building" and "maintaining" relationships with friends. At least 60% of children feel that mobile phone use has strengthened their relationships with either close friends or friends who have mutual hobbies/interests, however, only around four in ten children feel the same with friends who are in different generations, not very close or who have different interests.

69% of children access the internet using their mobile phones. The usage percentage grows rapidly from the ages of 12 to 14. Children access the internet to downloading tones and screensavers (70%), to read messages on BBS/SNS/Blogs/Profile site(65%) and to obtain information related to news, weather forecasts, or transportation (41%).

Children show more practical dependence on mobile phones than emotional dependence. A high proportion of respondents (around 70%) have fun using mobile phones or feel that not having one would be inconvenient, with the proportion increasing slightly with age. Regardless of age, 20% to 30% feel lonely if they do not receive any emails or incoming calls.

70% of parents have set rules for children's mobile phone use. 70% set a maximum limit for charges, and 60% limit the purposes for which the mobile phone can be used.

2-2 Korea

As of 2009, Korea's mobile phone penetration is predicted to be 97%, getting close to everyone owning a mobile phone. Children recognise mobile phones as a necessary item that lets them build new friendships, and also provides fun activities. Most children use their mobile phones for communication purposes and believe that not owning a mobile phone would cause great inconvenience.

34 1Rs.=0.02US\$

The usage of mobile phone and age appears to be very closely related to each other and usage increases as users grow older. High school students between 16 and 18 years old tend to make phone calls or use messages more frequently than younger ones. The main reasons for younger children starting to own mobile phones are for use in cases of emergency or to contact their parents. Children between 16 and 18 years old seem to receive mobile phones as gifts for graduation, or moving up a grade. These older children use mobile phones as a way to deepen their friendships rather than to communicate with their family members.

Children's internet use through mobile phones has yet to become a major trend. The basic use of the mobile phone internet is for downloading ringtones or songs; other activities differ by children's age. Younger children tend to enjoy more of the entertainment activities such as downloading games or videos. Children between 16 and 18 years old, however, use their mobile phone internet as a search tool.

The biggest concern related to children's mobile phones is the cost. About half of the parents have rules over their children's mobile phone usage and this is to restrict the usage charges. Mobile phone usage charges and exposure to inappropriate content are the biggest concerns regarding children's mobile phone usage.

Mobile phones are not a significant factor in strengthening the relationships between children and their parents. About half of the children have mobile phone calls with their mothers every day, compared to less than a quarter who talk to their fathers on the mobile phone every day. This differs by gender as girls talk to their mothers more often than boys; this is also the case for all other kinds of communication such as messages.

The children's three closest friends all own mobile phones and have similar interests and hobbies about which they actively share information with each other through messages. They show a strong desire to have similar views to their peers and clearly consider this a lot more important than sharing them with their parents.

2-3 India

The mobile phone industry in India is one of the fastest growing mobile markets over the world. In the survey, 22% families have provided mobile phones to their children for personal use, while 47% provided mobile phones as shared phones with other family members. Though mobile ownership is visible for children as young as 10 years, a steep surge is observed once the child reaches 14 years. Amongst teenagers of 16 years and above, ownership of mobile phones is higher amongst boys. The provision of mobile phones to children was found to be high in households of higher social strata, metro cities and income class. Security is cited as the most important reason for the parents to provide mobile phones to children. Parents feel the need to provide them with a mobile phone primarily to ensure their safety and to stay in touch with them all the time.

Up to 14 years old, a child primarily uses a mobile phone for sending and receiving calls. Once a child reaches 14 years of age, they start using messages. Internet usage amongst children is at a nascent stage. The average expense for a child's mobile is nearly Rs.260 (5.2US\$) ³⁴per month. Parents of girls, 16 to 18 year-olds and children belonging to higher SEC are found to be paying heavier monthly bills.

Communication between parents and children is found to be very frequent. Children believe that a mobile phone provides them with freedom to communicate with their parents anytime and hence helps to strengthen their relationship with their parents. This impact is highest amongst older children (16 to 18 years of age). Children feel that using a mobile phone enhances their social life and allows them to have stronger relationships with their parents and friends. Overall, the mobile phone plays an important role in the lives of Indian families and is accepted largely by both parents and children.

Appendix 2: Summaries of Country Reports

35 1 MXN=0.08US\$

2-4 Mexico

The mobile phone industry in Mexico has grown significantly and is entering a stage of maturity where annual single digit rates of growth are expected; however, the market has not yet reached the penetration that has occurred in other countries, so growth potential still exists. Mobile phone penetration within the population segment of children aged between 10 and 18 years old has reached 55%; the 16 to 18 year-olds segment is the highest penetrated segment (76%) and the upper socio-economic level (78%).

The study results show that security aspects, such as being able to get in touch in emergencies, remain the main reason to give children a mobile phone, followed by keeping in touch, especially with the mother. The first mobile phone is given when the child is at elementary school, aged between 8 and 12 years old (47%). 96% of the children have pre-paid mobile phones and parents pay on average \$236 pesos (18.9US\$)³⁵ per month for this service.

Mobile phones are used by children for making/receiving phone calls and for messages, but they show a clear preference for messaging (eight messages for every four phone calls on average). Internet use via mobile phone is still low (13%), however, is significantly higher than among the parents (5%). Children access the mobile internet to download tones and songs (49%), listening to music, enjoy games and watch videos (46%) and to obtain information (41%).

In addition to the security aspects that the mobile phone provides, mobile phones use among children is an important medium of fun and distraction when they are feeling bored and the main features that they seek in a mobile phone are camera and video camera, MP3, music and radio, as well as games. Black handsets are preferred by boys and pink by girls.

Regarding relations between parents and children, mobile phones have modified the communication and proximity between them, allowing them to stay in touch whenever they wish. Children are a lot closer to their mothers than their fathers; however, the mobile phone has allowed them to have a closer relationship with the father figure. Children share their mobile phone number with friends. Six out of 10 communicate with their friends by mobile phone calls and five out of 10 do it through messages. The mobile phone has become a medium to exchange information with friends and has helped to strengthen their relationships with others. Children share personal information, games, etc. with friends mainly through messages, which consolidate or make friendships stronger. The research shows that only four out of 10 interviewed parents mentioned having established rules for their children's mobile phone usage. Parents pay an average of \$236 pesos per month and mobile phones are used both for messaging as well as making/receiving voice calls, even though messaging is double in proportion to calls.

2-5 Cyprus

As of 2009, Cyprus's mobile phone penetration is around 92%. Mobile phone penetration increases according to age. 20% penetration at the age of eight years old exceeds 50% at 10 years old, reaching 97% at around the age of 13 and approaching 100% after that.

Children use mobile phones actively for communication and also entertainment purposes. Children use messages a lot more than their parents do. 28% send more than 25 messages per day and the number of messages increases as children grow up. 14% use the mobile phone internet and the number of users increases as age increases. Children access the internet to read messages on BBS/SNS/Blogs/Profile sites (45%), to enjoy games, music or videos (44%), and to obtain information related to sports, entertainment or hobbies (41%).

Children recognise mobile phones as necessary items. 86% feel "not having a mobile is inconvenient," 51% feel "lonely when not receiving calls." 66% have used a mobile phone in an emergency, to report a crime or to seek medical help.

Children communicate with their parents frequently using mobile phones. 58% talk with their mother and 44% talk with their father every day using a mobile phone. 44% exchange messages more than two to three times a week with their mother, 29% do so with their father. Parents show concerns about children's mobile phones and they have rules on the use of the mobile phones. 74% have rules on cost and 36% on the places where children use mobile phones.

Most children use their mobile phones to build and maintain relationships with friends. 76%-90% of children's three closest friends own mobile phones. 50% talk on the phone every day and 51% exchange messages every day with the closest friend. 75%-87% feel that mobile phone use has strengthened their relationships with either close friends or friends who have mutual hobbies/interests. 70-80% feel the same way regarding close friends who are not that close, or those who are in different generations/have different interests.

Appendix 3: Supplemental Figures & Tables

3-1 Supplemental Figures & Tables

Table 3-1-A Result of ANOVA tests (at 5% level)

Social Attitude	df	F	Prob > F
Reciprocity	5	90.89	0
General Trust	5	195.34	0
Innocence	5	188.34	0
Empathy	5	53.2	0
Utilitarianism	5	164.27	0
Privatization	5	65.98	0

Table 3-1-B. Children's Social Attitude

Ratio of "Agree" + "Somewhat agree" (by country)

	Japan	Korea	China	India	Mexico	Cyprus
Reciprocity						
When helped by someone, I will help someone else	89.5	82.5	94.9	81.6	89.6	89.6
When others extend kindness to me, I will extend kindness to someone else	91.6	82.3	96.8	85.6	87.3	92.0
When I see people helping each other, I also feel that I want to help people in trouble	86.6	83.8	95.4	92.1	88.8	94.4
General Trust						
Most people are trustworthy	63.1	78.0	92.4	78.5	63.9	36.1
Most people are trustful of others	54.7	71.4	87.1	71.1	65.6	50.0
Most people are basically good and kind	63.3	81.5	95.6	79.0	70.4	51.1
Innocence						
You can count on the word of most people	29.0	63.7	87.6	73.1	65.4	34.7
People generally tell the truth even when they know that telling a lie would benefit them	43.1	57.7	75.3	64.4	64.5	38.0

	Japan	Korea	China	India	Mexico	Cyprus
Empathy						
After seeing a movie / drama / animation, I have felt as though I were one of the characters	40.8	66.8	60.0	62.8	61.9	69.9
When I watch a good movie / drama / animation, I can very easily put myself in the place of a leading character	28.3	59.2	53.9	57.1	63.2	67.8
I am easily involved when I watch a movie / drama / animation	80.9	70.2	77.9	69.0	68.4	58.5
I sometimes try to understand my friends better imaging how things look from their perspective	67.1	69.6	80.4	76.9	77.0	85.1
When I'm upset at someone, I usually try to "put myself in his shoes" for a while	43.6	63.5	67.8	61.8	65.1	72.2
I sometimes find it difficult to see things from the "other guy's" point of view	25.7	22.1	52.5	29.1	25.0	31.4
Utilitarianism						
People always look after their own interests	57.0	73.6	78.3	88.2	90.3	85.2
In this society, you have to be on the watch for others so that they do not take advantage of you	69.7	78.0	74.0	84.9	81.4	87.9
In this society, many people try to deceive others for their own interests	50.1	72.3	69.4	84.7	84.9	90.4
Privatization						
I am not concerned with anything except for my family and relatives	49.6	45.1	40.9	72.6	84.3	58.7
I would rather be not concerned with things happening in the world	38.0	47.1	36.3	66.4	72.1	47.2
My life and the whole world are strongly connected	55.0	38.2	29.1	21.3	28.4	46.8
I do not care about what other people do as long as they do not bother me	27.1	67.1	55.9	82.8	88.4	73.3
The world would go wrong if I did not have concerns about it	61.4	61.5	73.4	41.1	32.2	76.2
I would rather spend my time fulfilling my life than being concerned with the things happening in the world	67.1	71.5	54.8	80.6	74.7	73.9
Being comfortable in life and having enough money are what is important	62.1	76.8	77.9	84.7	60.6	26.1

Appendix 3: Supplemental Figures & Tables

36 Table 3-C-1 to 3-C-6 shows reminder = (average shown in line) - (average shown in row). The significant (5%) reminder is shaded grey.

Table 3-1-C-1³⁶: Comparisons of mean values of reciprocity

	Japan	Korea	China	India	Mexico
Korea	-0.9				
China	0.7	1.5			
India	-0.2	0.7	-0.8		
Mexico	0.1	0.9	-0.6	0.2	
Cyprus	0.4	1.3	-0.2	0.6	0.4

Table 3-1-C-2: Comparisons of mean values of general trust

	Japan	Korea	China	India	Mexico
Korea	0.8				
China	2.2	1.4			
India	1.1	0.3	-1.1		
Mexico	0.5	-0.3	-1.8	-0.6	
Cyprus	-0.8	-1.6	-3.0	-1.9	-1.3

Table 3-1-C-3: Comparisons of mean values of innocence

	Japan	Korea	China	India	Mexico
Korea	0.7				
China	1.6	0.9			
India	1.1	0.4	-0.4		
Mexico	1.0	0.2	-0.6	-0.2	
Cyprus	-0.1	-0.8	-1.6	-1.2	-1.0

Table 3-1-C-4: Comparisons of mean values of empathy

	Japan	Korea	China	India	Mexico
Korea	1.0				
China	1.3	0.3			
India	1.2	0.2	-0.1		
Mexico	1.2	0.2	-0.1	-0.1	
Cyprus	1.7	0.7	0.4	0.5	0.5

Table 3-1-C-5: Comparisons of mean values of utilitarianism

	Japan	Korea	China	India	Mexico
Korea	0.5				
China	0.6	0.1			
India	1.6	1.1	1.0		
Mexico	1.7	1.2	1.1	0.1	
Cyprus	1.8	1.2	1.1	0.1	0.1

Table 3-1-C-6: Comparisons of mean values of privatisation

	Japan	Korea	China	India	Mexico
Korea	0.8				
China	0.1	-0.8			
India	2.6	1.7	2.5		
Mexico	2.9	2.1	2.9	0.4	
Cyprus	1.6	0.7	1.5	-1.0	-1.4

3-2 Data from questionnaires to children

* Respondents are mobile phone owners only.

3-2-1. "I would use voice calls rather than mobile messages (SMS/MMS/IM/email) to communicate important news."

	Agree	Somewhat agree	Somewhat disagree	Disagree	N
Japan	32.3	26.9	25.4	15.5	524
Korea	19.8	36.4	34.9	8.9	895
China	37.6	37.9	20.1	4.4	338
India	38.3	30.9	16.6	14.2	543
Mexico	34.0	31.1	15.9	19.0	647
Cyprus	51.2	28.0	14.4	6.4	686
Total	31.8	31.4	22.5	14.2	3633

Unit=%

3-2-2. "I would use mobile messages (SMS/MMS/IM/email) rather than voice calls to communicate important news."

	Agree	Somewhat agree	Somewhat disagree	Disagree	N
Japan	13.4	28.4	32.3	26.0	524
Korea	17.9	32.9	42.1	7.2	895
China	14.5	31.7	34.3	19.5	338
India	21.7	33.9	23.6	20.8	543
Mexico	36.9	32.2	16.7	14.2	647
Cyprus	14.1	22.6	30.4	33.0	682
Total	17.5	32.5	28.2	21.8	3,629

Unit=%

3-2-3. "By using my mobile phone, it doesn't matter if I am late to meet a friend because I can call them on my mobile on the way."

	Agree	Somewhat agree	Somewhat disagree	Disagree	N
Japan	14.2	18.2	31.3	36.2	527
Korea	14.4	49.5	29.5	6.6	895
China	35.5	49.7	11.2	3.6	338
India	31.5	43.8	12.5	12.2	543
Mexico	58.3	30.5	8.4	2.9	647
Cyprus	54.2	28.1	10.5	7.3	687
Total	32.3	31.8	23.1	12.8	3,637

Unit=%

Appendix 3: Supplemental Figures & Tables

3-2-4. "I have used my phone in an emergency, to report a crime or to seek medical help."

	Agree	Somewhat agree	Somewhat disagree	Disagree	N
Japan	6.6	7.8	16.7	68.9	527
Korea	6.0	30.6	25.8	37.5	895
China	17.5	29.3	16.0	37.3	338
India	28.9	34.1	20.3	16.8	543
Mexico	31.1	30.5	12.7	25.8	647
Cyprus	48.9	16.6	9.4	25.1	681
Total	30.9	23.9	18.5	26.8	3,631

Unit=%

3-2-5. "I can now contact my mother whenever I want."

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	N
Japan	48.2	24.0	12.0	11.2	4.6	525
Korea	55.1	35.8	8.3	0.9	0.0	895
China	73.7	24.6	1.5	0.3	0.0	338
India	56.9	31.9	7.0	4.2	0.0	543
Mexico	69.4	25.0	3.6	2.0	0.0	647
Cyprus	74.6	16.9	4.8	3.7	0.0	682
Total	49.0	20.2	13.3	16.9	0.7	3,630

Unit=%

3-2-6. "I communicate better with my mother now."

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	N
Japan	16.4	20.0	36.8	25.6	1.2	524
Korea	34.9	47.3	16.3	1.6	0.0	895
China	36.7	51.2	11.0	1.2	0.0	338
India	55.6	34.8	5.7	3.9	0.0	543
Mexico	61.1	30.5	6.2	2.3	0.0	647
Cyprus	47.6	22.2	18.4	11.8	0.0	685
Total	34.3	26.5	23.4	15.6	0.2	3,632

Unit=%

3-2-7. "I communicate better with my father now."

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	N
Japan	12.0	17.0	38.7	27.5	4.8	524
Korea	27.6	46.9	22.6	2.9	0.0	895
China	34.6	52.4	12.1	0.9	0.0	338
India	50.5	34.8	9.9	4.8	0.0	543
Mexico	60.4	30.9	5.9	2.8	0.0	647
Cyprus	41.9	24.6	20.7	12.9	0.0	676
Total	31.9	28.2	24.7	14.5	0.7	3,623

Unit=%

3-2-8. "The relationship between my mother and myself is stronger now."

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	N
Japan	10.7	17.9	40.3	30.0	1.2	524
Korea	16.3	45.7	33.0	5.0	0.0	895
China	41.7	45.6	11.8	0.9	0.0	338
India	50.5	34.8	5.7	9.0	0.0	543
Mexico	45.6	37.6	9.4	7.4	0.0	647
Cyprus	21.0	19.5	25.4	34.1	0.0	686
Total	26.3	30.5	25.5	17.5	0.2	3,633

Unit=%

3-2-9. "The relationship between my father and myself is stronger now."

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	N
Japan	7.3	16.0	41.0	31.1	4.6	524
Korea	18.1	50.4	27.6	3.9	0.0	895
China	37.9	48.5	12.7	0.9	0.0	338
India	51.0	33.9	7.6	7.6	0.0	543
Mexico	42.7	39.7	9.7	7.9	0.0	647
Cyprus	19.2	20.8	26.1	34.0	0.0	679
Total	24.4	29.7	27.3	18.0	0.7	3,626

Unit=%

Appendix 3: Supplemental Figures & Tables

3-3 Data from questionnaires to parents

* Respondents are parents of children who are mobile phone owners.

3-3-1. "Did you set any rules which the child has to follow when he/she uses the mobile phone?"

	Yes	No	N
Japan	70.6	29.4	504
Korea	52.3	47.7	893
China	41.6	58.4	341
India	33.8	66.2	222
Mexico	37.2	62.8	643
Cyprus	67.5	32.5	677
Total	52.9	47.1	3,280

Unit=%

3-3-2. "If the child broke the rules you set, what would you do?"

"Admonish the child"

	Yes	No	N
Japan	69.7	30.3	356
Korea	82.2	17.8	467
China	52.8	47.2	142
India	9.5	90.5	222
Mexico	22.6	77.4	239
Cyprus	18.4	81.6	457
Total	46.0	54.0	1,883

Unit=%

* Respondents are those who answered YES to the 3-3-1

3-3-3. "If the child broke the rules you set, what would you do?"

"Punish the child"

	Yes	No	N
Japan	14.0	86.0	356
Korea	19.5	80.5	467
China	7.8	92.3	142
India	3.6	96.4	222
Mexico	27.6	72.4	239
Cyprus	19.3	80.7	457
Total	16.7	83.3	1,883

Unit=%

* Respondents are those who answered YES to the 3-3-1

3-3-4. "If the child broke the rules you set, what would you do?"

"Talk with the child"

	Yes	No	N
Japan	46.1	53.9	356
Korea	59.1	40.9	467
China	59.9	40.1	142
India	23.4	76.6	222
Mexico	56.9	43.1	239
Cyprus	61.1	39.0	457
Total	52.7	47.3	1,883

Unit=%

* Respondents are those who answered YES to the 3-3-1

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