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## People, mobiles and society. Concluding insights from an international expert survey

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**People, mobiles and society.**  
**Concluding insights from**  
**an international expert survey**

PETER GLOTZ AND STEFAN BERTSCHI

**Introduction**

It is difficult to estimate whether and how people will integrate mobile technologies into their daily lives, and how the usage of technologies will affect social life. In the survey presented in this chapter, we aimed to verify social 'situations' which derive from the use of mobile phones. Some of these situations are already in existence (at least in some regions or countries). Mostly, individual expert opinions have been used to detect tendencies and prospects of mobile phone usage in the past. To enhance this we use a method which has existed for approximately fifty years: the Delphi method (see Linstone and Turoff 1975). The Delphi technique is a questionnaire method for organising and sharing expert opinion through feedback.

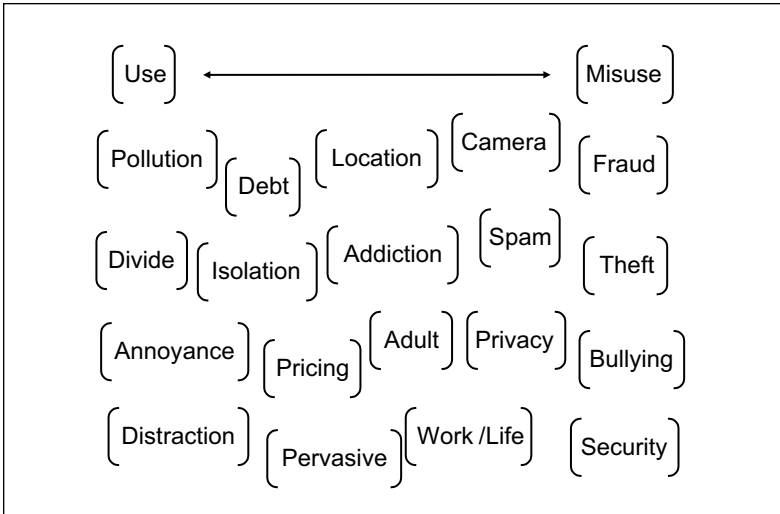
Here it was used to get personal, but well-founded, opinions about actual status, incidents and developments in social effects of mobile phone usage. These opinions were validated throughout the process by discourse—during the process the participants were encouraged to build on their replies in the light of the anonymous replies of other members of the panel. The survey's aim was not simply to collect individual opinions but rather to find a consensus among experts of different backgrounds and origins.

Research on the social effects of mobile phone usage and their future should cover a broad variety of aspects. A preceding study of the literature and a public and media perception analysis helped to identify and narrow down important issues and cohesions (inspired by facet theory, see Borg 1977). An example, called the 'Honeycomb' and used in preparation of the Delphi survey, is shown in Figure 1.

We then went on to build preliminary questions which led to the final questionnaire. Furthermore, various impulses collected at an in-

ternational expert workshop, held in the summer of 2004 in London and organised in association with T-Mobile International, were used for the development of the survey as a whole (which was conducted in the autumn of 2004). The results give an impression of the current state of research and about further needs and issues.

Figure 1: The 'Honeycomb' depicts issues related to the mobile phone.



We invited 300 experts from academia, research institutions and the telecommunications industry to take part and to answer a first online questionnaire. Fifty percent of the invited experts answered these questions in the first wave (see Table 1 for details on demographics). To validate the effects of mobile phone use, we provided statements (and short scenarios), and it was the participants' task to estimate these 'everyday situations' in the light of their likeliness to happen in the near future (i.e. 2005-2007). Therefore, a six-point Likert scale was applied to all the statements.<sup>1</sup> These statements were then bundled into thematic entities. The experts were asked to estimate the likelihood of a specific scenario occurring in the near future. The online questionnaire in the first wave of the survey consisted of 54 closed and seven open questions. The wording of questions and statements was kept simple and designed to get distinct opinions about the effects of mobile phone usage in everyday life.

1. The scale description is followed by abbreviations used in this chapter's figures: Very unlikely (VU 1), Unlikely (U 2), Somewhat unlikely (SU 3), Somewhat likely (SL 4), Likely (L 5), Very likely (VL 6). We did not provide a neutral 'middle position', in order to force the experts to give clear predications.

*Table 1: Survey demographics (percentages).*

		Wave 1	Wave 2
Response rate		n=153	n=117
Gender	Female	22.9	23.1
	Male	77.1	76.9
Age	20-29	6.2	6.0
	30-39	39.7	38.8
	40-49	28.8	27.6
	50-59	19.9	21.6
	60+	5.5	6.0
Origin	Europe	75.8	76.1
	North America	18.3	17.1
	Asia/Oceania	5.9	6.8
Workplace	University/College	51.0	52.1
	Telecom industry	17.0	17.1
	Consultancy/Market research	11.8	10.3
	Private research institute	8.5	6.8
	Public research institute	6.5	7.7
	Other	5.2	6.0
Expertise	Low	4.1	4.4
	Medium	28.1	28.3
	High	67.8	67.3

The second questionnaire consisted of those 27 closed-ended questions which evoked dissent among the panel in the first wave. In the second wave, the participants were encouraged to build on or revise their replies in the light of the other replies. To be able to reconsider the first reply we provided mean value, standard deviation, and the expert's own opinion for every statement. After considering this information the participants were asked to confirm their previous answer or to revise/alter the answer. Three-quarters of those who concluded the first questionnaire were willing to answer the questionnaire of the second wave as well. The Delphi technique used is a subjective-intuitive method and builds on the experience that participants are more likely to revise their answers if they are not fully convinced about them.

Unfortunately, the Asian sample is too small to draw relevant conclusions about this region. Still, it is possible to state that there are no significant differences as to participants' origin or workplace: Americans and Europeans are equally distributed among progressive and conservative views, whereas a certain type of 'cultural critique bias' is slightly visible among German participants; surprisingly, industrial members are equally as critical as academics. Cross-testing showed that self estimated 'higher level' experts tend to change less to the di-

rection of mainstream answers and are more likely to remain with their opinions in the second wave. In general, changes between the first and second wave were not that significant. Despite a certain (methodologically given) movement towards the mean value of the first wave, changes between the two opposite opinions (unlikely vs. likely) were minimal. The chapter ends with a list of those participants who agreed to be mentioned and a full data table (see Table 2).

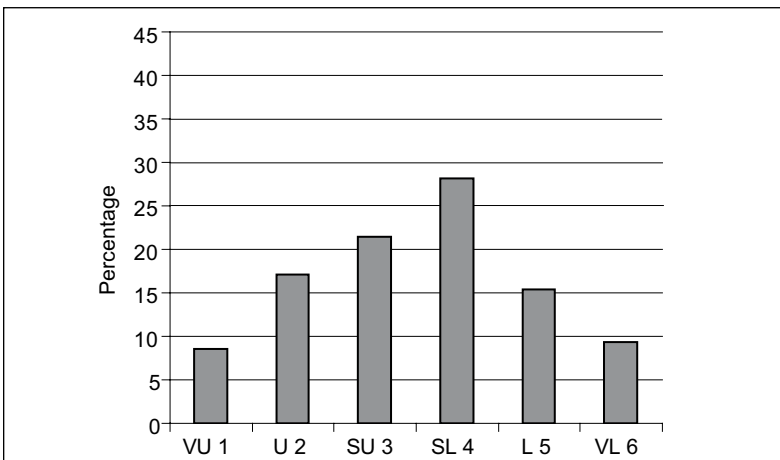
### **Social relationships**

As has been clear from the preceding chapters, an important aspect of recent research has been establishing how mobile phones will determine social relationships in the near future. However, the experts do not agree on the statement that the mobile phone will be important for 'making new friends' (Q 4.1). Sixty percent indicated that it might be likely to do so but half of them said that it will only be somewhat likely. Despite future technology seeming to enable complex social interactions, as discussed by Paul Golding in this volume, there is still no convincing answer as to whether the mobile phone will allow users to make new friends, but there is first evidence of users exchanging numbers readily as they become some kind of personal ID. There may be potential in offering services like a mobile 'friendster' to get to know friends of your friends as they are in the same bar or club for example. The answer is rather different if asked whether mobile phones will be important to maintain existing relationships (Q 4.2). Almost all of the experts agreed to this statement with more than half of the experts saying that this is very likely. The experts are convinced that it is very likely that social consequences of mobile phone use—as they are shown throughout this volume and the Delphi chapter—will affect everyday culture a great deal (Q 17.1). But they do not think that such consequences are likely to pose a threat to the telecommunications industry in general (Q 17.2). Because the mobile is 'attached' to its user (as Jane Vincent lays out in her chapter in this volume) it allows an easy and always accessible connection to stay in touch with loved ones—'Research so far has demonstrated that mobile phones are most often used to maintain contact with existing social networks, rather than make entirely new contacts'. Most experts agree with the statement that mobiles are an important means of maintaining relationships (see Hans Geser's chapter in this volume).

The results after the first wave showed that participants were discordant but that they tend to see it as more likely that 'people who do not use mobile phones will risk losing contact with mobile phone users' (Q 4.3). Some of them adjusted their answer in the second wave. According to the experts, it is still likely that possession of a mobile

phone will divide the haves and the have-nots in the near future. Three quarters of the experts assume that this scenario is to some extent likely to happen. One expert is convinced that this is 'only true among the young' and if people are not present in other way (WLAN, landline phones etc). Most respondents do not think that relationships will become more superficial (or less committed) as a result of mobile phone usage (Q 4.4). Three quarters of the experts assume that this scenario is unlikely to happen. It is interesting to see that experts who already had an extreme opinion tend to stick to their first estimation. It was mentioned that all of these five scenarios are dependent on age, gender, different cultures and geographic regions: 'The debate will rage on around the lack of sensitivity and impact on social values as consumers withdraw into their devices and ignore the public settings they find themselves in. This is already very apparent in Japan and Korea.' Mobile telephony not only connects people but 'mobile telephonic practices run the risk of forging walled communities within already established social groups'.

Figure 2: Social life will become less predictable.



The last and most interesting aspect seems to be if social life will become less predictable because of the mobile phone (Q 4.5). After the first wave of our Delphi survey there was distinct uncertainty among the experts (aggregated values: 50 percent unlikely vs. 50 percent likely). This is also shown by the fact that all possible options were chosen at significant levels. After the second wave it seems to be somewhat likelier that social life may become less predictable because of spontaneous mobile phone use (47 percent unlikely vs. 53 percent likely, see Figure 2). It is acknowledged by experts that mobile phones will in-

crease the flexibility in social life and shorten planning time scales from days to hours or minutes. It was quoted that the mobile 'will allow (and even encourage?) people to be less committal' and that 'social life will become different because of the mobile phone.'

### **Non-users and mobile phones**

We wanted to understand what problems non-users are going to face. The Delphi participants are (slightly) undecided as to whether non-users of mobile phones will be confronted with an information deficit (Q 12.1). The statement presumes that more and more information gathering will take place via mobile devices (this will probably not be the case in the near future, according to 54 percent of the experts). In general, experts do not seem to pay too much attention to the phone as a source of information ('because people always will have an (additional) online access via PC'). But, 'the mobile phone will very likely eliminate the information divide in due time' (because they are affordable, portable and can be bought second hand in many developing countries, see Jonathan Donner's chapter in this volume). The problems that non-users may encounter 'may be much more about their social relations than a lack of information.' There is some connection between this and another expert's opinion: 'One should not underestimate the informational effect coming from spontaneous and flexible use of a device that offers access to sources or coordination with others.'

It seemed likely that not having a mobile phone could limit people's mobility (Q 12.2). But similar to the previous statement, experts are undecided (aggregated values: 44 percent unlikely vs. 56 percent likely). Usually, 'non-users have strategies for not having a mobile phone, it is more likely to be a conscious decision not to have a mobile.' How much this is a cultural issue is showed by one expert's opinion: 'In the US, I do not foresee mobiles becoming the necessity they seem to have become in Europe or Asia.' One respondent has drawn the following conclusion in the second wave: 'It is interesting that I found myself thinking, the core value of mobile phones is not the mobility'. But the answer to another question shows that more than eighty percent of the Delphi participants think that it is likely that the mobile phone will increase its user's mobility (Q 16.1). Still, we would have expected the likelihood to be higher. This may have to do with the fact that 'the mobile phone became a mass consumer item at least in part because the population was already very highly mobile.'

The detachment of the mobile phone user, in contrast to the non-user, is clearly shown by the significant likelihood (almost eighty percent) of problems with the planning of everyday life and coordination with other people's lives (Q 12.3). Taking into account that so many

contacts already occur on mobile communications (see Leslie Haddon's chapter in this volume), it does not seem unrealistic that non-users 'may not be able to do as many things simultaneously, which is not necessarily bad.' According to respondents, not having a mobile phone in the future should not be more of a problem than it is now.

### **Dependence on mobile phones**

To reveal how much users will depend on their mobiles we assumed and tested the following statement: 'If the mobile phone gets lost or stolen, it will affect the user's daily life a great deal.' (Q 2.1) Even though a few experts claimed that there will be backup solutions for personal data stored in mobile phones, the opinion dominates that it really is affecting people's lives if they are separated from their mobile phone (and the data like contacts, messages, photos it carries). More than ninety percent of the experts think that this scenario is to some extent likely to happen. One expert's quote ('I think we should not overestimate dependency as it relates to objects.') can be partly refuted because there seems to be more than just a 'material object' involved. Most experts do not acknowledge that people's dependence on mobile phones is problematic, as long as it is defined as reliance (as depicted in the statement and not as some psychological dependence or addiction). The idea of 'dependence' sometimes implies a negative effect, with which the participants do not necessarily agree.

The mobile phone will become more and more important. This can be seen in the increasing dependence that is predicted by the Delphi participants. Ninety percent agree with the statement that this dependence will increase dramatically (Q 2.2). A few experts point out that dependence will not increase much more as people already depend a great deal on their mobile phones (see Jonathan Donner's chapter for information on the importance of mobile phone usage in developing countries). On the other hand, the expert sample is undecided as to whether dependence on a technological device like the mobile phone will mobilise the broad public and lead to a public debate (Q 2.3). The outcome almost equates to a normal distribution or so-called bell curve. It is finally a question of people's awareness of what kind of issue this will be in the future. According to one participant, 'the public debate depends on transparency regarding health risks and social status of the mobile phone'.

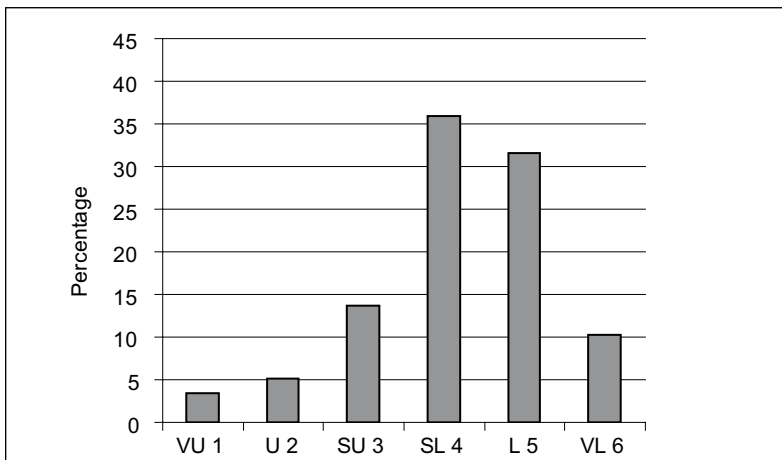
The survey then introduced a concept of addiction and asked to what extent mobile phone addiction will be a genuine problem. The experts agree with the assumption that mobile phone addiction will only affect very few people (Q 3.1). Three quarters are convinced that this scenario seems likely to happen. Still, some participants criticised



our definition and stated that it is difficult to separate addiction from dependence. One expert made clear that ‘addiction is a clinical condition, dependence is not.’ The question would ‘assume that there is such a thing as mobile addiction’ and would ‘portray an impending crisis which does not exist, even though understanding the psychology of mobile attitudes is very important’. Or, as another expert stated, ‘the mobile phone becomes the scapegoat for larger issues about decay in society’.

Even though only few people might be affected by some kind of addiction, it is likely to lead to a debate in the media (Q 3.2). Because of this topical nature of the controversy over mobile addiction, the participants assume that it will be covered by the media (see Figure 3). Some experts point out that it is the logic of the media to search and display ambivalent and controversial issues (‘perceptions of addiction rather than realities often drive media debates’). One expert suspected that ‘this debate in the media will be relatively short lived’. Another expert is convinced that the ‘media debate will not affect the problem.’

*Figure 3: Addiction will lead to a debate in the media.*



### Children and mobile phones

The only strictly normative question in our survey asked at what age children should get their first mobile phone (Q 6.1). Most experts specify an age between ten and fourteen years which they consider as being appropriate (with a mean value of 11.4 years). We were surprised how broad the distribution was (it spans between the age of six and sixteen years). According to one expert, the appropriate age depends on the functions available. Another respondent answered the question more

generally: 'When they earn enough money and have enough media competence to buy and run a mobile phone!'

According to the experts, the average age of first mobile phone possession will get lower (Q 6.2). Almost all of the experts indicate that this scenario is likely to happen in the near future. Safety and security are benefits of children's mobile phone usage mentioned most, followed by the ability to stay in touch with parents, family and friends. Potential health hazards and surveillance (with different characteristics) have been mentioned as negative aspects of children using mobile phones, followed by cost, responsibilities in general and peer pressure. Because of this confirmed probability that children using mobile phones are getting younger, it seems likely to very likely that the public, and especially the media, will cover the issue. Ninety percent assume that it is to some extent likely to happen that children's possession of mobile phones will lead to a debate in the media (Q 6.3). One of the experts made clear that 'parental choice should be a primary determinant not government regulation'.

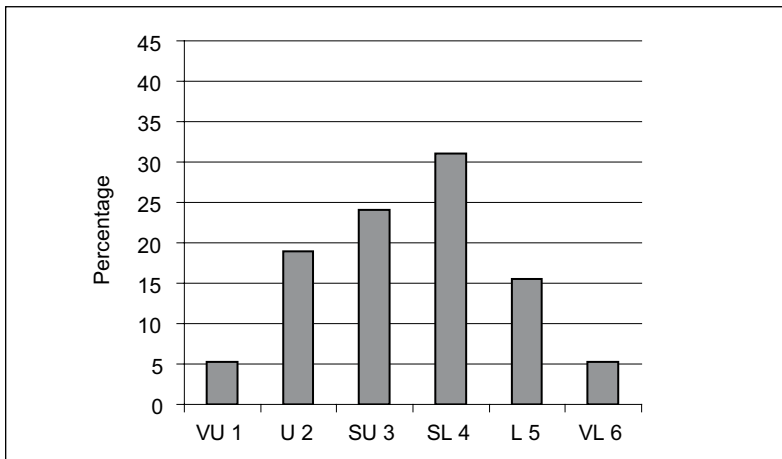
The same may apply to the following aspect. Because at the time of the survey it is easy to access adult content (such as porn or gambling) with a mobile phone, we were interested what this will mean for the protection of minors. Experts are undecided as to whether the mobile phone will erode the protection of minors (Q 7.1). The answers were almost equally distributed after the first wave (aggregated values: 51 percent unlikely vs. 49 percent likely) and changed slightly during the second wave of the survey (i.e. 48 vs. 52, see Figure 4). It can be rated as a highly controversial issue. According to one respondent, 'access to adult content is limited by the network operator's mutual agreement, so the actual statement in this [the main] question is false'. Still, it may be questioned if such an agreement will be sufficient to protect minors. Some experts claim that 'technical filters will be needed' but others are unsure 'if we would be able to regulate what gets transmitted from phone to phone.' The worst fear is seen in 'unsolicited porn (spam) showing up on a child's mobile phone.'

There is also significant uncertainty as to whether we will need stronger legal regulation on minors' use of the mobile phone (Q 7.2). However, more than half of the experts assume that this scenario is likely to happen in the near future. A few respondents are convinced that we will get more regulation but that stronger legal regulation 'will not help much'. One expert believes that 'network operators will be forced to take legal responsibility for the content (of images) transmitted on their networks'. The solution, according to two experts, is parental control, not legal limitations, and teaching media competence is more important than regulation.

## Teenagers and families

Because such effects are already visible we assumed that there may be peer pressure among teenagers to have the latest device and to use new services (e.g. games, ringtones, video). The responses to the statement that the mobile phone will be important for teenagers to display their own lifestyle (Q 9.1)—99 percent of the experts indicated that it is to some extent likely to be true—show strong evidence that the mobile phone is more than a means of person-to-person communication. Even though the answers are related to teenage usage, the question of taste and environment of usage determine what kind of phone a person possesses and what kind of abilities or services are used ('symbolic value'). In many places and for some years now, it is true to say that 'the mobile phone is already an important part of a teenager's identity', but it is dependent on culture as well: 'American teenagers are far less likely to see their phones as a reflection of themselves than are teens in Europe or Asia.' It looks as if 'the phone is the fashion item rather than the services or contents.' (See Leopoldina Fortunati's chapter in this volume.)

Figure 4: Mobile phones will erode the protection of minors.



The widespread use of ringtones and wallpapers already indicates that the ability to use a certain service leads to strong usage. Ninety percent of the participants think that it is likely that new services and contents will put pressure on teenagers to use them (Q 9.2). Services which are able to make the phone more unique and personal are seen as important drivers. In the near future it is likely that this finding will apply to pictures, music and games. 'My phone is better

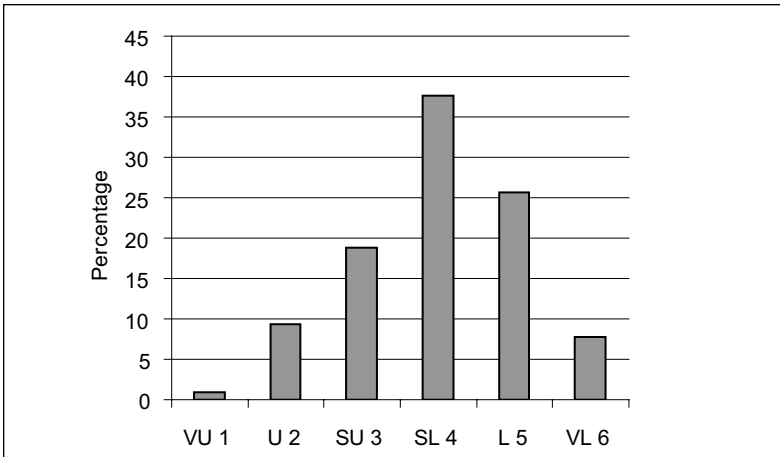
than yours' could be an expression that leads back to the statement above. One expert points out that it is more probable that new services attract usage and evoke pressure among peers. Usually these factors will 'be tempered by the negotiation of economic cost (especially with parents), and also by the role of novelty in the expression of identity' (see both the chapters by Leslie Haddon and Richard Harper in this volume).

Closely related to teenage usage of mobile phones is the belief that very intensive use may lead to indebtedness. Whereas there is no doubt that the amount of money spent on mobile phone use will increase (Q 10.1) and that higher costs will be connected to more extensive uses, it seems a little less likelier that an increasing number of people will spend more money on mobile phone use than their budget allows (Q 10.2). It may soon happen 'that the expense for mobiles will be considered a necessity rather than a luxury' and that 'families prioritise these costs in their budgets'. 'People are much more aware of how much they spend on their mobile phone than on other household and personal expenditure.' This aspect is highly dependent on culture and development. It was mentioned that 'kids often do not spend their own money'. Unclear tariffs or pricing plans are given as a likely reason for people's problems with cost control (Q 10.3). According to some experts, prepaid or pay-as-you-go options (or specific family plans) will decrease the risk of losing cost control. Additionally, consumers seem to be more sophisticated, 'changing tariff and pricing plans relatively frequently to establish what works for their call usage.' According to one expert, the 'intelligence of billing systems allows operators to monitor usage, and increasingly allows users to control usage.' Service providers who offer ringtones etc. with unclear cost policies and paid subscription offers are mentioned as well. It is not surprising that the Delphi participants see a distinct likeliness that consumer protectionists will increasingly address indebtedness (Q 10.4). In some countries they have already been criticising prices for mobile phone usage (especially for text messaging). One expert points out that this kind of indebtedness is 'a problem of the lower classes', and that these problems never find much real attention in the public debate.

To assess the mobile phone's effect on family relationships we assumed that parents do not know what their children are doing with their mobile phone and therefore they might lose authority (Q 8.1). Almost three quarter of the experts state that it is unlikely that such a scenario will take place. Participants' remarks indicate that this issue, as well as the two following, is dependent on context, like relationships and social practices within each individual family, and on the specific culture in place; thus, problems are not caused solely by the presence of the mobile phone. There is evidence that 'parents use the mobile, and prepaid or pay-as-you-go vouchers in particular, as a reward or

punishment tool for their children'. Seventy percent of the experts agree with the statement that because of the mobile phone, people will feel closer (more intimate) to their family members (Q 8.2). Still, it is in some way surprising to see that family bonds are not expected to be more strengthened by intense contact over distance (see Figure 5). The mobile phone may allow people to keep in touch more often, but according to some experts, 'this will not make the relationship more intimate or closer because it does not replace physical closeness'.

Figure 5: People will feel closer to their family members.



The phenomenon shown here—in the previous and the following scenario, saying that the mobile phone will be used as a means of social control and surveillance (Q 8.3)—is Janus-faced: Where there is a likelihood of closer relations, there is the same likelihood of control and surveillance (as assumed by more than eighty percent of the experts). Children like the mobile phone because they can call their friends away from parental ears, but it also allows parents to call them anytime, anywhere. Even surveillance can have a positive connotation, so long as parents can assure themselves that their children are alright and not in any danger. Some experts point out that 'children already have strategies to avoid surveillance'.

### Communication and the mobile phone

The scenario that 'mobile phones are going to compensate increasingly for face-to-face contacts' (Q 5.1) led to a wide distribution of the values on the scale (aggregated values: 44 percent unlikely vs. 56 percent like-

ly). There is a slight likeliness that distant communication compensates for direct communication. This effect can not solely be attributed to the mobile phone, and this may explain the experts' answers. According to one respondent, it is more likely that the 'quality of face-to-face contacts may decrease due to the presence of mobile devices (checking incoming mails etc)'. In Japan, 'it has been shown that mobile phone usage increases the instances of personal interactions with friends'. It is a rather widespread opinion that mobiles 'tend to add to and facilitate face-to-face communication, rather than replace it'.

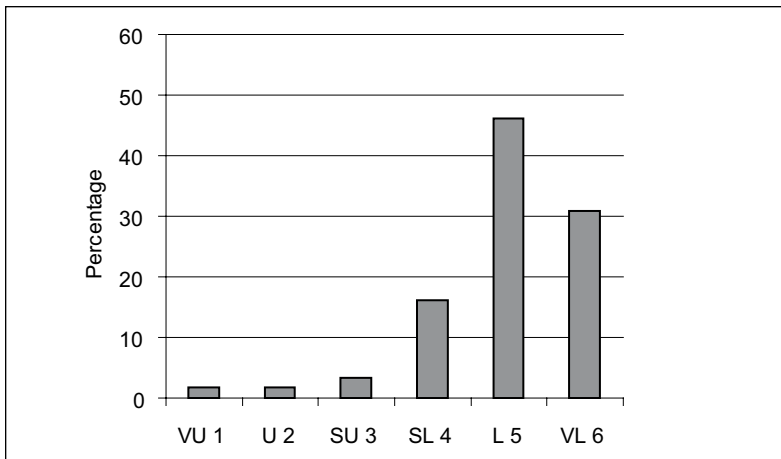
Three out of four experts in our sample think that there is a likeliness that people will spend more time communicating because of new services (pictures, video etc). If there are more opportunities to communicate, it is quite certain that people will use them (Q 5.2). But as the comparison with the foregoing answer shows, these communications will probably not replace established forms of mobile (or even human) interaction. Finally, it is quite obvious that the variety of mobile communication possibilities is growing. But according to the Delphi participants, this will not apply so rapidly to pictures (Q 5.3). It seems to be unlikely that pictures will increasingly replace words in a mobile communication setting (as indicated by more than sixty percent of the experts). This is implied in the statements that 'pictures work with text' and that it needs 'special situations, where the picture can replace words or where the context is known'.

The Delphi participants are convinced that the social pressure to communicate anytime and anywhere will increase (Q 5.4). More than ninety percent think that this will most likely happen in the near future (see Figure 6). Current research already shows that instant reaction to mobile communication attempts is expected by some people. Still, it is not fully known 'if social pressure to communicate with others is a function of age or exacerbated by the technology'. One expert is convinced that 'we will see a more conscious use of mobiles in the near future'. The following statement is connected to this: 'As a non-user of mobile phones I am very conscious of social pressure to be available anytime and anywhere, and have made a lifestyle choice to reject it'.

Whereas it seems rather unlikely that the specific language of mobile text messaging will worsen young people's orthography and grammar skills (Q 13.1), it is likely that mobile phone language will change standard language, according to the experts (Q 13.2). It was mentioned 'that text messaging provides a creative means of expression that may disregard conventional grammar and is more closely associated with oral/aural language (as opposed to written language)'. But seventy percent of our experts agree that a new mobile language, which is adjusted to the device (small amount of characters, poor typing interface) and the lifestyle of the user, will interfere with standard language. Experts are not worried about such a change because languages, 'in

order to be relevant to cultures, need to evolve, change and transform'. The rather extraordinary hypothesis—'Through mobile messaging near-illiterate population groups will be reintroduced to literacy' (Q 13.3)—is not thought to be true, nor will it have a distinct impact in the near future. But it can be said that text messaging 'gives people an incentive to write and formulate their ideas, so in places with a low literacy rate, it may even boost literacy.'

*Figure 6: The social pressure to communicate anytime and anywhere will increase.*



### Privacy and camera phones

Mobile phone use leaves data traces (e.g. shopping, downloads). Therefore we wanted to know if people will lose control over their personal data (Q 14.1). Data protection is a highly important issue with mobile devices. Our respondents obviously predict that it is likely for mobile phone users to lose direct control over their personal data (more than eighty percent think so). 'Many companies so-called privacy policies outline exactly how individuals sign away many of their rights to control over their data.' This can be contrasted with another expert's notice: 'People give away a lot of personal information if you offer them bonus or incentives.' It is even possible that the mobile phone may shift what is considered private. It is not surprising that ninety percent of the experts say that it is to some extent likely that misuse of personal data will lead to a public debate (Q 14.2). There is an issue which rather hinders debate: 'Users are beginning to be aware of privacy concerns on the Internet, but I think awareness of issues related to the mobile lags behind.' As soon as a new condition builds awareness for its im-

pacts and is reflected as potentially dangerous, people may ask for stronger legal regulation. Even though regulations of some kinds already exist, there is high probability of such a thing happening: According to eighty percent of the experts, we will need stronger legal regulation mandating privacy (Q 14.3), and most likely 'we will get stronger regulation'. Legal regulation will strengthen service providers' obligations to make personal data collection an opt-in activity. It is obvious that regulation is dependent on countries and markets: In Germany (and other parts of Europe) legal regulation is sufficient but needs to be controlled. In general, regulation in Europe is already more strict than in the US. This leads experts to demand stronger privacy laws.

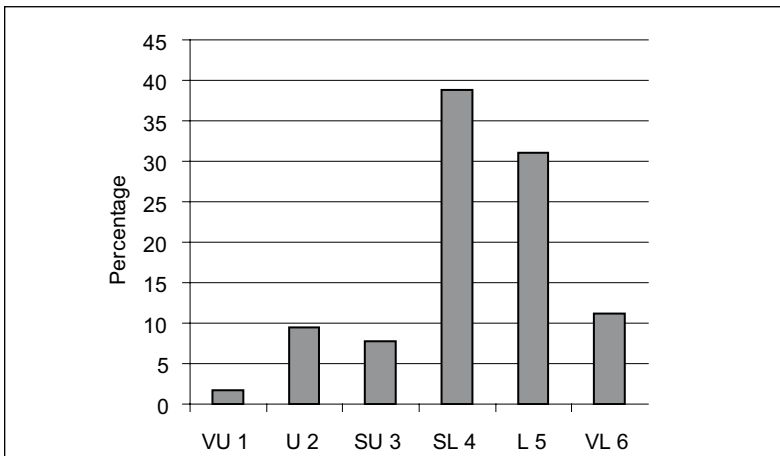
We assumed that one potential impact of (the increasing number of) mobile phones with built-in cameras can be seen in a substantial invasion of people's privacy (Q 11.1). According to two thirds of the experts, this is likely to happen to some extent. Camera phones will probably continue to gain in popularity but will not be at the centre of public debate. Findings among young Norwegians indicate that people do tend to behave according to acceptable standards when they take photos. Therefore, 'camera phones will invade a few people's privacy intensely but there will not be widespread invasion of privacy'. Use and misuse of camera phones will be dependent on the culture in a specific society: In Japan there are already issues of concern—mostly around porn and copyright violations. In Europe, video phones have been misused in a phenomenon called 'happy slapping'. Furthermore, we assumed a certain positive effect of increasing camera phone usage. But more than sixty percent of our experts think that it is unlikely that people will re-discover their surroundings and their environment because of camera phone use (Q 11.2). It was mentioned that 'people will rather use pictures increasingly to communicate about fashion, share time-tables etc.' There is huge consent among the experts that if camera phones are massively misused legislation will be necessary (Q 11.3). Less than a fourth of the experts are saying that such a scenario is unlikely. 'The Data Protection Agency in Italy has already legislated against the misuse of camera phones.' Similarly it has already lead to legislation in the US but after all, legislation seems more likely to happen in Europe. One respondent adds that it could be handled similarly to smoking, others object that it is unlikely that many governments will legislate for this (also because it is difficult to enforce), and that it is more likely that 'control will happen at the organisational, local level (in individual buildings and facilities)'. An exception can be seen in the 'moves by some governments requiring a shutter click on camera phones'.



## Work/life balance

According to our experts, there is no denying that mobile phone usage increases its users' accessibility. What may be surprising is the fact that almost all of the respondents predict an ongoing increase in accessibility in the near future (Q 16.2). To have a closer look at this issue we asked the following questions again in the second wave of the Delphi survey. The balance between work and life seems to be endangered (see Figure 7). There is a significant prediction shown in this figure that users of mobile phones increasingly face losing leisure time because they will always be accessible to their employer (Q 16.3). But accessibility needs to be adjusted as 'mobiles can both facilitate working practices, as well as become an interference in leisure time'. Having to be accessible for employers is already a fact for most professionals known to one of the experts, but they seem 'to be attracted to the idea that they 'have' to be 'always on' because they are anxious to be seen to be indispensable'.

*Figure 7: People will lose leisure time because they will always be accessible to their employer.*



Even though a potential loss of leisure time seems likely, almost three quarters of the experts do not assume that people will not be able to do what they like with their leisure time (Q 16.4). An expected change in quantities does not have to be followed by changes in the quality of people's life planning. Mobile phone users will still have control over their own leisure time. It could even be easier to organise both spheres and their interactions. It was mentioned that 'people are very good at

negotiating their public and private lives even as they continue to blur.' One expert objects that leisure time has already been eroded and that 'the mobile has become embedded in these changes, rather than causing them.'

It is an important insight from our survey that almost ninety percent of the experts predict that people will develop an awareness of the influence of mobile phones on their everyday lives (Q 16.5). According to a respondent, 'people are already aware of the influence of the mobile phone in their everyday lives, as witnessed by their reactions when the phone is lost or stolen.' Another pointed out that 'the intense battle between addiction and awareness will go on.' In the second wave two respondents greatly doubted the outcome of this question, because 'people have not demonstrated an awareness of the influence of other technologies on their lives, so why should the mobile phone raise awareness?', and because 'mobile phones will drop into the background and people are not likely to realise what has changed.'

### **Conclusion and outlook**

In a second part of the Delphi survey we asked the participants what they think were the most positive and negative effects of the mobile phone, and what effects it will have in the near future (i.e. 2006-2007).

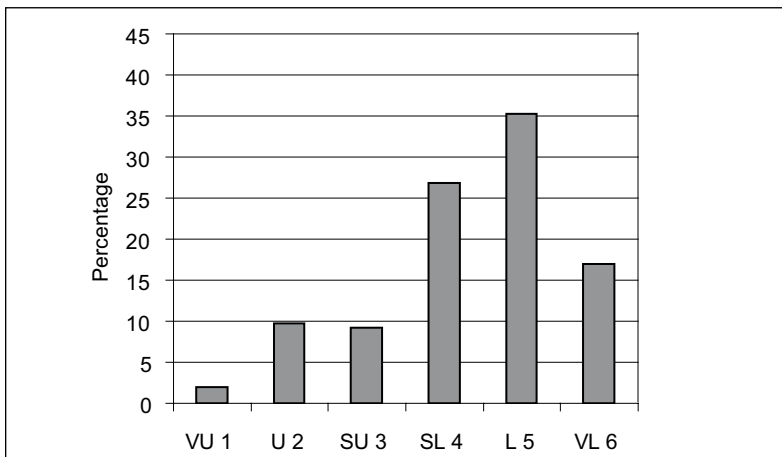
The most important positive effect the mobile phone has had on people's lives so far is "connectivity and connectedness" (36 votes or 15 percent). Increased 'social connectivity' or connectedness includes the easiness to keep in touch with people (mostly defined as friends and family). The mobile phone is seen as 'the most important channel in social life' because it facilitates interactions. Especially for young people the mobile phone provided new experimental grounds. The second most frequently quoted effect is summarised and coined as "flexibility, efficiency and convenience" (counted 35 times, 15 percent of experts, where convenience accounts for half of this number). First of all the mobile phone allows ease of communication in an as yet unknown way. Furthermore it improves life quality because of an 'increase of flexibility in an environment with increasing demand for flexibility'. Through mobile phone use the user can achieve more efficient lifestyles and convenience in handling practical matters. Not only that 'work has become more efficient' via the 'ability to handle daily business on the fly', but the mobile phone allows people with restricted time (blue collar workers) or place (construction workers) to have more efficient control over what they do, and maybe over a certain balance between work and life. We find "security, safety and emergency" (32 mentions, 14 percent) as the third positive effect significantly brought up by our experts. Next

to the mobile phone's ability to save lives (because it can be used in the case of emergency anywhere), it has increased the sense of safety in all kind of threatening situations.

The most important positive effect the mobile phone will have in the future remains to be "connectivity and connectedness" (35 mentions or 18 percent of experts). The possibility to share experiences (via pictures and video) will grow, and there will be an overall increase in mediated social connectivity. This will allow the 'strengthening of social relations between groups of friends, family or business colleagues', or even change the ways in which people interact. Mobile data services are the second most frequently quoted positive effect (27 mentions, 14 percent of experts) from communication tools (like e-mail), access to services and exchange of data to entertainment services, because of the mobile phone's ability 'to be increasingly in touch with data assets'. Its ability to easily communicate data 'will be beneficial both for work and leisure'.

Data services are a rather new phenomenon in the Western hemisphere (compared to Asia where this has a longer tradition, see Genevieve Bell's chapter in this volume). Therefore the first Delphi questionnaire opened with a question on important drivers of mobile phone usage in the near future. Accessing (or surfing) the Mobile Internet is not yet clearly seen as a major driver of mobile phone usage (compared to the other drivers, see Q 1 in Table 2). Using the wording of an expert, 'Mobile Internet will not be a driver in the next 2-3 years as it will still be slow, inconvenient and very expensive'. But it has the potential to become a driver in the longer run (almost eighty percent of the experts indicate a likeliness of some kind, see Figure 8).

Figure 8: Surfing the Mobile Internet will be an important driver of usage.



As soon as the mobile phone gets other technical capabilities, like more precise location awareness, information gathering of different kinds could be a widely used application (mobile commerce was mentioned in this context as well). The significance of this driver will largely depend 'upon the degree to which the services offered meet the mobile life-style'. Downloads (games, ringtones, music etc) are a kind of data service as well and they are already an important driver, especially among young people. Our experts predict that it will be even more important in the next two or three years. Like the ringtone example indicates, all of these drivers 'will depend on market segments', their symbolic value and cultural backgrounds. There is no doubt that voice communication and messaging will remain important drivers. Some experts pointed out that they would give a 'very likely' for text messaging and a 'somewhat likely' for picture messaging. Nevertheless our survey indicates that people-to-people communication is seen as the main driver of mobile phone usage (see Nick Foggin's chapter in this volume). But data services are winning ground in this race.

"Flexibility, efficiency and convenience" are seen as some of the remaining effects the mobile phone will have on people's lives in the near future (counted 27 times, 14 percent of experts, where convenience accounts for a third of this number). One of the experts sees 'the greatest benefits going to populations that are not a part of the mainstream and to white-collar workers'. New data functionalities will increase the ability to work and communicate nearly everywhere and according to people's own schedule, and will therefore lead to new and increased flexibility. One benefit in terms of efficiency can be seen in saving transportation time and costs (see Michael Hulme's and Anna Truch's chapter in this volume). According to another expert, the mobile phone will 'allow in many places the continuation of important cultural practices (see for instance the spread of Islamic applications on cell phones in the Middle East)'.

The most important negative effect the mobile phone has had on people's lives so far has been coined as "accessibility and the balance of work and life" (40 votes or 25 percent of experts). This threat emerges from the expectation of constant availability and pressure on social life emanating from the mobile phone's intrusiveness. It includes the demand for immediate response which is part of people's 'feeling of always being on call' and which is 'leading to difficulties separating work and leisure'. The effect summarised as "privacy, stress and distraction" was frequently quoted by our experts as well (37 mentions, 23 percent). They complain about a loss of privacy and intimacy, and criticise surveillance, increased stress and distraction which accompany a life supported by mobile communication. The invasion and loss of privacy, the 'control within personal relationships about whereabouts (and development of mistrust)' may lead to friction and stress. According to

one expert, the mobile phone 'has made people more insular and rude within their environment'. There are some wider effects applied by experts as well: The mobile phone 'has reduced time to reflect and to adjust to situations', led to a lack of concentration and to a reduced 'ability/readiness to contemplate and rest without external contact'. Finally, there is the aspect of 'distraction' by mobile phone use. Opinions range from 'we have many distractions but this one seems particularly pernicious and ongoing' to an even more discerning statement seeing the introduction of a 'new opaque and aggressive industry and an overpriced consumer distraction from more important issues'. "Inappropriate usage" of mobile phones was mentioned 27 times (or by 17 percent of experts). This effect is connected with the issues of increased ambient noise and disturbance, the blurring of the public and the private (see Joachim Höflich's chapter in this volume) and a decline in social etiquette (see Lara Srivastava's chapter). Inconsiderate use in meetings, cinemas, restaurants etc and its negative effects on people's environments is not only connected with simple annoyance. But even 'barriers where cell phone use was considered a faux pas are gradually being eroded' and the same is happening to the 'social permission regarding interruption' (where inappropriate use directly leads back to accessibility).

The most important negative effect the mobile phone will have in the future is seen in "privacy, stress and distraction" (56 votes or 39 percent of experts). This category of effects was already important in the past, but now it is mostly extended with 'intensified' or 'increasing', such as intensified loss of privacy. The risk of easy access to specific information may lead to an abuse of personal data and an intrusion of integrity; and 'privacy issues will become more significant with location-based services' (increasing quality of camera phones, where pictures will be taken in all kinds of situations, is mentioned by some experts as well). According to one expert, users need to become more aware of the dangers provided by data collections and their potential misuse. Another effect, increasing 'mobile spam' (Q 15.1) and mobile advertisements, account for eight of the mentions in this category. In general, experts are convinced that technological solutions will develop to keep mobile spam under control (Q 15.3). The increasing loss of intimacy has a second face to it, loss of attention. According to one respondent, the mobile phone could be used as a means of not-being-excluded, and this could 'encourage the proliferation of the public use of mobile phones' to avoid loneliness within public life, or to avoid being ignored (see Hans Geser's chapter in this volume). The mobile phone 'will test the bounds of security, privacy, and social and behavioural taboos'. However, to quote one expert, one can 'reckon that people will learn to actively manage the technology'. Far behind with a mere of 18 votes (or 13 percent of experts) ranks "accessibility and the balance of

work and life”, the most negative effect seen in the past (which of course will be important in the future as well, thinking about next generation mobile network infrastructure; see Paul Golding’s chapter in this volume). According to respondents, mobile phone use will ‘further abolish the borders between business and leisure life’. Control over accessibility is more and more eroded. The issue of “cost and indebtedness” was mentioned by twelve experts (or eight percent). ‘People will be more and more lured into expensive no-value-services.’ This especially applies to younger people who have problems affording mobile phones and services.

Beside the fact that already established effects will continue to be important, one can see that positive effects are more widely distributed in the experts’ views and that negative effects come to a head more precisely (compare given percentages). In fact, one of the experts’ statements is rather conclusive: ‘Mobile phones are essentially a fulfilment of a universal need that has always existed!’ The present volume has tried to cover most of the identified aspects and issues and therefore—in the combination of invited chapters and Delphi survey—provided a variety of topics on the meaning of mobile phones for society. However, the future will show how accurate the estimations in the Delphi survey are and will be.

### **List of participants**

Participants who agreed to be listed in the Delphi publication (116 out of 153 experts)

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Table 2: Complete data table (percentages, mean and standard deviation).

	Wave 1						Wave 2											
	1	2	3	4	5	6	n	M	SD	1	2	3	4	5	6	n	M	SD
1.1 Drivers: Mobile Internet	2.0	9.8	9.2	26.8	35.3	17.0	153	4.4	1.3									
1.2 Drivers: Downloads	2.0	3.9	2.6	17.8	36.8	36.8	152	4.9	1.2									
1.3 Drivers: Voice communication	0.7	2.0	0.7	6.6	14.6	75.5	151	5.6	0.9									
1.4 Drivers: Text and picture messaging	0.7	0.7	1.3	3.3	38.4	55.6	151	5.5	0.8									
2.1 Dependence: Life	0.7	3.3	1.3	9.2	38.2	47.4	152	5.2	1.0									
2.2 Dependence: Increase	0.7	2.0	5.9	24.2	33.3	34.0	153	4.9	1.0									
2.3 Dependence: Public debate	3.3	15.1	23.0	24.3	23.0	11.2	152	3.8	1.3									
3.1 Addiction: Few people	5.3	9.9	10.6	21.2	38.4	14.6	151	4.2	1.4	3.4	6.8	13.7	28.2	35.0	12.8	117	4.2	1.2
3.2 Addiction: Media debate	4.0	7.3	16.6	29.1	32.5	10.6	151	4.1	1.3	3.4	5.1	13.7	35.9	31.6	10.3	117	4.2	1.2
4.1 Relationships: New friends	6.0	18.5	15.2	28.5	21.2	10.6	151	3.7	1.4	5.2	19.1	13.9	33.0	20.0	8.7	115	3.7	1.4
4.2 Relationships: Maintain relationships	0.0	1.3	0.0	10.5	30.9	57.2	152	5.4	0.8	0.0	0.9	1.7	7.8	34.5	55.2	116	5.4	0.8
4.3 Relationships: Losing contact	1.3	14.5	13.2	27.0	20.4	23.7	152	4.2	1.4	1.7	9.4	15.4	26.5	33.3	13.7	117	4.2	1.2
4.4 Relationships: Superficial	13.1	37.9	23.5	14.4	5.9	5.2	153	2.3	1.3	12.8	35.0	26.5	16.2	4.3	5.1	117	2.8	1.3
4.5 Relationships: Social life	7.8	23.5	19.0	22.9	15.7	11.1	153	3.5	1.5	8.5	17.1	21.4	28.2	15.4	9.4	117	3.5	1.4
5.1 Communication: Face-to-face	5.9	22.2	15.0	30.7	17.6	8.5	153	3.6	1.4	3.4	17.9	23.1	31.6	19.7	4.3	117	3.6	1.2
5.2 Communication: More communication	2.6	11.2	11.8	29.6	32.2	12.5	152	4.2	1.3									
5.3 Communication: Pictures	9.8	26.1	27.5	20.9	11.1	4.6	153	3.1	1.3	8.5	23.1	33.3	23.1	10.3	1.7	117	3.1	1.2
5.4 Communication: Social pressure	1.3	5.2	5.9	15.0	40.5	32.0	153	4.8	1.2	1.7	1.7	3.4	16.2	46.2	30.8	117	5.0	1.0
6.1 Children: What age							141											
6.2 Children: Lower average age	0.0	2.0	1.3	15.0	47.1	34.6	153	5.1	0.8									
6.3 Children: Media debate	0.7	2.6	5.3	20.4	40.1	30.9	152	4.9	1.0									
7.1 Minors: Erode protection	4.8	23.8	22.4	26.5	15.6	6.8	147	3.5	1.3	5.2	19.0	24.1	31.0	15.5	5.2	116	3.5	1.3
7.2 Minors: Stronger regulation	7.4	23.0	14.9	20.3	20.9	13.5	148	3.7	1.5	6.0	20.5	17.9	27.4	16.2	12.0	117	3.6	1.4
8.1 Family: Losing authority	9.9	31.1	25.2	22.5	7.9	3.3	151	3.0	1.2	11.2	30.2	31.9	19.8	5.2	1.7	116	2.8	1.1
8.2 Family: Closer relationship	2.0	14.5	12.5	30.9	28.9	11.2	152	4.0	1.3	0.9	9.4	18.8	37.6	25.6	7.7	117	4.0	1.1
8.3 Family: Social control	1.3	3.9	9.9	34.9	38.2	11.8	152	4.4	1.0									
9.1 Peer: Teenager lifestyle	0.0	0.0	1.3	6.5	41.8	50.3	153	5.4	0.7									
9.2 Peer: Services and pressure	1.3	2.6	5.3	19.2	43.7	27.8	151	4.9	1.1									

	Wave 1						Wave 2											
	1	2	3	4	5	6	M	SD	1	2	3	4	5	6	M	SD		
10.1 Ine bedness: Increased spendings	0.7	2.6	5.9	27.0	38.8	25.0	4.8	1.0	0.0	2.6	10.3	37.1	42.2	7.8	116	4.4	0.9	
10.2 Ine bedness: Budget control	0.7	4.0	12.6	38.4	32.5	11.9	4.3	1.0	0.0	7.8	12.9	34.5	30.2	11.2	116	4.1	1.2	
10.3 Ine bedness: Unclear tariffs	3.3	10.5	15.1	30.3	25.0	15.8	5.2	4.1	1.3	3.4	7.8	12.9	34.5	30.2	11.2	116	4.1	1.2
10.4 Ine bedness: Consumer protection	2.0	3.4	8.1	39.2	33.8	13.5	4.8	4.4	1.1									
11.1 Camera phones: invade privacy	2.6	13.7	15.0	34.6	26.1	7.8	4.3	3.9	1.2	2.6	11.1	18.8	31.6	29.1	6.8	117	3.9	1.2
11.2 Camera phones: Rediscover surroundings	10.5	25.7	26.3	25.7	7.9	3.9	4.5	3.1	1.3	11.1	31.6	23.1	25.6	6.8	1.7	117	2.9	1.2
11.3 Camera phones: Governments	2.0	10.5	10.5	31.6	29.6	15.8	4.2	4.2	1.3									
12.1 Non-user: Information deficit	9.3	22.5	22.5	25.8	13.9	6.0	4.3	3.3	1.4	6.0	21.4	26.5	28.2	13.7	4.3	117	3.4	1.2
12.2 Non-user: Limitation of mobility	4.6	21.2	21.9	21.9	19.2	11.3	4.5	3.6	1.4	4.3	17.9	21.4	29.9	21.4	5.1	117	3.6	1.3
12.3 Non-user: Problems coordinating life	3.3	11.3	10.6	31.1	23.2	20.5	4.2	4.2	1.4	2.6	8.5	11.1	32.5	30.8	14.5	117	4.2	1.2
13.1 Writing: Young people	5.9	22.4	26.3	23.0	11.8	10.5	4.2	3.4	1.4									
13.2 Writing: Change language	2.6	10.5	16.4	34.2	25.0	11.2	4.0	1.2										
13.3 Writing: Reinroduce near-literate	11.4	20.8	34.2	22.8	8.1	2.7	4.9	3.0	1.2									
14.1 Data protection: Lose control	1.3	8.6	10.6	38.4	27.8	13.2	4.5	4.2	1.2	0.9	5.2	8.6	37.9	31.0	16.4	116	4.4	1.1
14.2 Data protection: Public debate	0.0	1.3	9.9	25.2	41.1	22.5	4.7	4.7	1.0	0.0	0.9	7.8	21.6	50.9	19.0	116	4.8	0.9
14.3 Data protection: Stronger regulation	3.3	2.0	12.7	24.0	37.3	20.7	4.5	4.5	1.2	2.6	0.9	12.2	24.3	40.0	20.0	115	4.6	1.1
15.1 Mobile spam: Increase	0.0	2.7	2.7	14.7	36.0	44.0	5.0	5.2	1.0									
15.2 Mobile spam: Media debate	0.0	0.7	4.0	15.2	38.4	41.7	4.5	5.2	0.9									
15.3 Mobile spam: Filters	1.3	1.3	5.3	21.2	37.1	33.8	4.9	4.9	1.0									
16.1 Life: Increase mobility	1.3	7.3	8.6	22.5	33.8	26.5	4.5	4.6	1.2									
16.2 Life: Increase accessibility	1.3	3.3	10.0	36.7	48.7	45.0	5.3	0.9										
16.3 Life: Lose leisure time	3.3	7.9	14.6	33.1	27.2	13.9	4.5	4.2	1.3	1.7	9.5	7.8	38.8	31.0	11.2	116	4.2	1.2
16.4 Life: Control leisure time	14.0	26.7	28.0	15.3	11.3	4.7	4.5	3.0	1.4	10.3	31.0	31.9	18.1	7.8	0.9	116	2.8	1.1
16.5 Life: Develop awareness	0.7	6.0	8.0	28.0	37.3	20.0	4.6	4.6	1.1	0.0	6.1	7.0	30.4	40.0	16.5	115	4.5	1.0
17.1 Wider effects: Everyday culture	0.0	2.7	4.7	24.0	42.7	26.0	4.9	4.9	1.0									
17.2 Wider effects: Telecommunications industry	18.1	38.2	27.1	8.3	4.2	4.2	14.4	2.6	1.2									

M = Mean, SD = Standard Deviation