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Introduction: Why study children and teens?

In its short life, a surprisingly large literature on the use of mobile communication among children and teens has been written. Indeed, in recent years there has hardly been a conference or a collection of readings that did not include work in this area. The iconic status of the mobile telephone among children and teens has been one of the big surprises associated with this form of communication. While originally conceived of as a way to allow business people to interact, mobile telephony has become, perhaps more than anything else, a phenomena of teens and young people. Reports from Japan (Hashimoto 2002; Ito 2005), the Philippines (Ellwood-Clayton 2005) the broader Asian context (Castells et al. 2004; Kim 2004), Norway (Ling 1999; Ling 2000; Ling 2001a; Ling 2001b; Ling and Yttri 2002; Skog and Jamtøy 2002), the UK (Green and Smith 2002), Finland (Nurmela 2003; Oksman and Rautiainen 2003; Rautiainen and Kasesniemi 2000), the broader European scene (Castells et al. 2004; Mante-Meijer et al. 2001) and the US (Grinter and Palen 2002; Katz and Aakhus 2002) all underscore this. In Malaysia, for example, students reported that the mobile telephone was among their most prized possessions (Abdullah 2004) and material from the US shows that teens would be loath to give up their cell phone (University of Michigan 2006).

It is perhaps not surprising to find this amount of commentary since children's wide scale adoption of mobile communication exposes taken for granted assumptions as to who should talk to whom and when. It shows the gaps in parental control and the yearning (or perhaps confusion) regarding adolescents' press towards emancipation (Park 2005). However, teen's use of mobile communication also allows us to focus on more conceptual issues. These include the wider context social construction of childhood, issues around child-parent relations and peer relations, diversity amongst youth and some of the social consequences of young people's mobile phone practices.

The first part of this chapter looks at elements within the mobile phone and children/youth literature, organized around on the one hand, parent-child relationships and on the other peer relationships, although links between the two. The second part of the chapter looks more critically at how we might frame this material suggests some considerations for future research.

Parent-child relationships and the mobile phone

While the amount of coverage of parent-child relationships around the mobile phone is substantial it is not as large as the literature on the role of the mobile within peer relationships. One key underlining theme of this material is that both parents and children using the technology as a way to manage the child's growing independence. But some of the research also acknowledges the scope for conflict within this process, in the same way as has been documented in relation to other ICTs, such as television viewing. This will be developed in the second half of the chapter.

To set the scene, many parents first purchased the mobile phone as a way to insure their children's safety as they move into the broader society. In the UK, the adoption of the mobile is sometimes linked to when the teen starts driving "in case the car breaks down" (Nafus and Tracey 2002, 212). It allows for remote parenting, or, to provide the original gender inflection, 'remote motherhood' (Rakow and Navarro 1993). The child can be contacted in the early afternoon and plans can be laid as to where they will be after school (visiting friends, at home) and what responsibilities need to be attended to (school work, household chores etc).

One metaphor that has been employed is that the mobile can allow a type of 'umbilical cord' between parent and child. However, some writers in this field have highlighted how the device provides the child with a type of cautious independence or autonomy vis-à-vis their parents (Castells et al. 2004). For their part, parents may be more or less active in using the mobile telephone as a control device, checking up on their children's activities remotely, but they may also use it to push their children on the road towards independence.

While the general trend is towards emancipation, it is also important to note that at times adolescent also seeks reassurance that the parental bond is operative. The children of divorced parents, for example, might need to know that the non-resident parent is emotionally available (Castelain-Meunier 1997; Ling 2005b; Russo Lemor 2005). We can also see this in the context of less permanent separations such as when the child is at a summer camp or at a week-end retreat. In some of these cases they seek out the contact with their parents that the mobile telephone provides. Thus, while the general trend is away from intense parental interaction, it is by no means a one-way street.

More practically, there is the question of familial coordination between parents and mobile phone equipped teens. Döring et al found that parents were frequent telephonic interlocutors with adolescents, particularly via voice mobile communication (Döring et al. 2005). This is the adolescents alerting parents as to when they are done with free-time activities and thus optimizing transportation. Certainly when it is expedient for them, children also use the device for coordination, for example, if it is more convenient to ask for a parent to come and retrieve them than having to deal with the public transport system. But of course, 'coordination' can also sometimes involve the exercise of parental power, as in the case of parental requests/commands that the child comes home for dinner, etc (Ling 2005a).

As the case of other ICTs, including rules about television watching and the strategies children use to evade those rules, children also resist such parent control and surveillance. For example, when distance from their parents is important, teens' deploy strategies through which they limit parents' access (Oksman and Rautianen 2003). Guises such as "my battery was dead" or "I didn't hear it ring" are ways of erecting barriers and the child establishing a separate identity. One the other hand we find the conflicts over the costs of children's mobile telephony. On the one hand, negotiations about the mobile phone bill may be used by the parent to give children object lessons in independent economic responsibility, for example as

a way to give the child a better understand of money and consumption (Ling 2004, 112). But it also clearly leads to tensions, pressures and also arguments, as we will see later.

Peer relationships and the mobile phone

Once again, while there is a functional aspect to peer-to-peer communications and indeed the organization of meetings, this literature has also noted the role of peers in the process of emancipation, especially in identity formation. The re-orientation away from family to peers in adolescence especially had already been shown research on the use of the fixed telephone line (Claisse 2000). So one question is that of how the mobile phone fits into this pattern but also enhances it. Part of this process involves the emergence of peer norms in relation to the mobile and, as well be clear in the next section, in relation to texting in particular.

Research in the US (Choi 2004), Malaysia (Abdullah 2004) and Scandinavia (Ling and Haddon 2003; Ling and Yttri 2002) and Germany (Roessler and Hoeflich 2002) shows how important mobile communication is for the coordination of everyday affairs, and this applies to peer groups of youth as well. Indeed the device allows for a type of so called 'micro-coordination' that is nuanced and fine-tuned to the immediate needs of the individuals (Ling and Yttri 2002). Taken in the context of teens, interactive coordination has often developed into a form of diffuse social arrangements that become negotiated and more concrete as the time for the event approaches. It is also sometimes the case that the individual keeps several opportunities open, choosing one or the other only as the time for the events nears. The implications of this will emerge later.

Turning to the mobile's more expressive role, various researchers have paid attention to how the mobile can assist in the adolescent's development of identity in its role as a fashion object. The mobile phone can function as a form of display much in the same way as a piece of jewellery (Henin and Lobet-Maris 2003). It becomes a part of the individual's façade or look (Fortunati 2005; Fortunati et al. 2003; Ling 2001b). This may be calibrated to fit into a style that is shared in a peer group or can be used in the individual's pursuit of class transcendence (Nafus and Tracey 2002). Yang, for example discusses how college students at Beijing University used the mobile telephone as a marker of current as well as assumed future status (2004). Finally, some people can over-invest themselves in the mobile telephone. That is, the device becomes too central to the individuals sense of self. Chen, for example links mobile telephony with depression (2004) and Park talks about mobile phone addiction (2005).

As developed above, a part of the emancipation process is the teen's development of a self-identity. The mobile telephone plays a role here by being providing adolescents with a more direct link to peers, compared to the fixed line which any household member may answer(Castells et al. 2004). The arrival of texting went a stage further by making that communication cheaper, given that teens and young people often use mobile communication on a limited budget,. This was one key motivation, along with the willingness to try innovative forms of mediation (Kangas 2003), that lay behind the diffusion of texting among teens.

Social forces are also seen in the newly coined ethics regarding the use of the mobile telephone. Studies have shown that teens have tacit understandings of when texting as opposed voice or face-to-face interaction is appropriate. This comes up, for example, when considering the "correct" way to end a romantic relationship. Thus, it is not honourable to dump someone by sending a text message (Taylor and Harper 2001). The fact that it is a topic

of debate at all means that there is not necessarily a consensus and that some teens make choices that others think inappropriate (Haddon 2005).

Peers and Texting

It is no overstatement to say that texting has been a phenomena that was developed among teens (Ellwood-Clayton 2003; Kasesniemi and Rautiainen 2002; Skog and Jamtøy 2002). Texting arose when it was still free to use. Teens' discovery of this meant that the use of texting went from nothing to a huge amount of traffic in only a few months time. The operators were quick to set up tariff systems in order to capture the revenue from this form of interaction, but by then, the cultural die had been cast. For many parts of the world – but interestingly not the US (Broege 2004; University of Michigan 2006) – texting had become a type of talisman for the teens of the late 1990's driven perhaps by a type of generational élan (Oksman and Rautiainen 2003).

Perhaps because of this, adolescents also derived various types of lingo and jargon when using texting (Ling 2005d; Skog and Jamtøy 2002). Even though this phenomenon is often overplayed in the press, teens are the largest users of slang and emoticons (Ling 2005d). However, teens' interpretation of messages goes beyond the content of the text and can include the timeliness of a response. In some cases this is as carefully calibrated and interpreted as the actual text of the message (Laursen 2005). Responding too quickly may be see as being over eager while waiting too long is seen as being too casual when, for example, interacting with a potential new boy/girlfriend.

The wider social nature of texting, beyond particular person-to-person communications, is indicated when that specific messages that these youth receive are shown to others and shared in the co-present peer group (Rautiainen and Kasesniemi 2000). There are also reports on how messages are collectively composed and circulated among friends and how fitting phrases are borrowed and baked into new messages as needed (Haddon 2005; Johnsen 2002; Kasesniemi and Rautianen 2002). Another example would be the case of asking friends which text messages are appropriate for being saved (those that evoke memories of fun times) and which can be erased (messages from earlier boy or girl friends). At a more abstract level, some research indicates that intense use of texting can be an element in the formation of cliques (Cardon and Granjon. 2002; Licoppe 2004; Reid and Reid 2004) that are ideologically unified (Gergen 2003) and that can, in some cases, play into various forms of boundary testing and deviance (Ling 2005c; Pedersen and Samuelsen 2003).

Even though texting is often used for traditionally instrumental forms of interaction such as coordination ('where are you?') or delivering messages ('come by at 9:00'), there are also phatic messages where the main point of making contact is that it is a type of gifting (Johnsen 2002). In this way the individuals confirm their common status and that they are part of the same network. This form of gifting may be of particular importance for teens since the friendships marked by the giving and reciprocity can be a fixed element in an otherwise turbulent period of life (Bakken 2002; Johnsen 2002; Ling and Yttri 2002; Taylor and Harper 2001).

Finally, it is clear that the texting can provide a direct and discreet channel between (potential) partners in matters of intimacy, dating and sexuality (Dietmar 2005; Döring et al. 2005; Prøitz 2006). Both genders have reported the use of MMS to photograph what they consider to be attractive members of the opposite sex (Scifo 2005).

Turning to dating and eventual sexuality, analysis has shown that during the early exploratory phases of a relationship teens use texting as a way to get to know their new love interest. These can be in the form of innocent flirting between teens who have met at some social function (Ling 2004). As the push for intimacy develops, the intensity and the familiarity of the text messages might increase. Prøitz discusses texting in which the thoughts and impulses that are too loaded to express verbally find an outlet in text messages. These include quite frank discussions about the desire to kiss, have sex, etc. (2004). There can also be full-fledged courting that is arranged via third party matchmakers. This is carried out with the use of texting that is outside the traditional more staid courting behaviours (Ellwood-Clayton 2003). Meanwhile, adolescents who are steadily dating use texting and voice mobile communication as a direct – and often well used – channel (Lin and Lo 2004). It allows them to plan for trysts before hand and to draw out enchantment of the event afterwards (Ito and Okabe 2005) and it allows them to develop ritual forms of interaction such as a quasi-obligatory "good-night" or "good-morning" text message (Ling 2004). In those cases where there is some question as to the loyalty of a boy/girlfriend, Dietmar found that, the mobile is used to monitor partners. This can be done, for example by checking on their availability to exchange text messages or willingness to take calls (2005). The partner who is no longer interested can also use the lack of response to these appeals as a not-so-subtle description of their feelings.

The changing experience of children and youth

If these previous sections describe the results of research on children, youth and mobiles pretty much using the frameworks of the studies themselves, we now need to reflect upon these patterns of behaviour, contextualing them in various ways. One starting point is the literature on the social construction of childhood (Ariès 1973; Gillis 1981; James and Prout 1997). This approach draws attention to fact that the experience of children and youth as well as expectations of their roles, their independence, their knowledge etc., are relative: they change over time and vary cross-culturally.

It is worth noting that in these discussions of social construction the exact details of how childhood and youth are changing are themselves debated. For instance, one view, reflected in a Norwegian study, is that there has been a move from children having autonomy and responsibility to being more protected, making less decisions and experiencing making more restrictions in their daily activities (Vestby 1994). Another view, reflected in British work, is that we see more autonomy being experienced by children, more domestic democracy and the individualization of childhood - but also increased regulation and risk management of children by adults (Livingstone 1997 - referring to Giddens' analysis). These two characterizations cover some similar points, but they are not identical.

However, the implication is that in the earlier section reviewing parent-child interaction in relation to the mobile phone, the negotiations, the rule setting, the way in which children's independence is managed, etc. is in part influenced by these wider and constantly evolving perceptions of what is appropriate for children and indeed, what is appropriate parental behaviour (which signals we should also consider the social construction of parenthood). This provides a new insight into the question: how much is 'new' about parent-children interactions around the mobile phone? Before the mobile phone appeared, did not parents and children have similar interactions around other issues? If we take a short time-scale, in general the answer is probably yes. But would the interactions have been a little more different if the mobile have appeared much earlier, say 40-50 years earlier. Moreover, this perspective also

requires us to think about the cross-cultural dimension. On the face of it we seem to have studies from different parts of the world which show similar processes. But one would have to at least ask to what degree the interactions of parents and children around mobiles are slightly different in different countries or cultures, because of any cross-cultural variation in how the interactions are managed more generally.

To take another example in the same vein, we noted how the mobile is used for coordination when youth are mobile (e.g. arranging to be picked up by parents). But children's mobility has itself changed (or rather, it has in some countries), with various writers noting arguments about children's greater absence from unsupervised public spaces (Büchner 1990; Livingstone 2002). That mobility has a number of facets. In some countries, like the UK, many children spend a fair amount of time in organized post-school activities - in other words, supervised spaces – and it appears that this is increasing, creating part of the need for parents to ferry children around, and hence the interest in coordination (Haddon 2004). Reflecting concerns about children's safety in public spaces, we now have a situation where the vast majority of children in Britain are now driven to school and many are picked up from school, sometimes involving mobile phone coordination if there are changes in plans. Lastly, it has been argued, and this is perhaps truer in some Western countries than in others, that many social activities that in the past took place in public are increasingly taking place in the home. The home is itself becoming more public, more open to outsiders (Wellman 1999). Children also experience this, having their friends around to interact with in their homes, in their own rooms, part of a phenomenon identified as 'Bedroom Culture' (Livingstone 2002). Once again, this creates an interest in the coordination where it involves dropping off and picking up children from friends homes.

In other words, the mobility patterns of youth is not a constant – we can see how it has changed in some areas, in some respects, and this has a bearing upon the role and usefulness of the mobile phone for managing the related coordination. But in all these cases, there is cross-cultural variation. For example, the concerns about safety and the degree of ferrying children around is not the same in all countries. And even the bedroom cultural described about applies more to some parts of the world than others with studies in various Asian countries indicating that this does not exist, partly because of the size and nature of homes (Lim 2005 on China; Yoon 2002 on Korea).

A slightly different angle on this social construction of childhood involves asking how the arrival of ICTs like the mobile phone (and the Internet), as well as the related practices that emerge among children themselves, can lead to re-evaluations of children's circumstances and roles, certainly from parents' perspectives. What new rules should relate to this technology? At what stage are children responsible enough to manage the mobile phone? We have a more concrete illustration of changing expectations in a study commenting on Norwegian debates about the minimum age that children should be to have access to a mobile phone (Ling and Helmersen 2000). After the mobile had spread widely amongst the teenage population, the new phenomenon in the late 1990s was mobile acquisition by pre-teens. This created some unease, as shown in interviews with parents about the age at which it was appropriate to have a mobile. In fact, even some contemporary teenagers commented that nowadays children were receiving mobile phones when they were 'too young', given that these youth had only acquired a mobile themselves when they were first in their teens. During this period in the late 1990s the mobile phone became an 'appropriate' coming-of-age gift for children, suggesting a broader social (though perhaps temporary) fixing of the correct age for the consumption of this technology.

A different framework in which to consider the changing experience of children is cohort or generational analysis. Much has been made of the fact that it was the youth of 1990s who

were pioneers in the use of mobile technology for texting. There is actually some evidence that this could contribute to a sense of identity in this respect. One Italian study looking at young people's reactions to the MMS service being offered found that while some saw sending multimedia messages as the next step on from texting other rejected it in part because it was industry driven service, whereas, they argued, it was they and not industry that they had helped to created the culture of SMS (Colombo and Scifo 2005).

In which case, what happens with the next cohort of teens who by now are encountering a pre-existing set of practices, rather than pioneering them. In one sense, there is always scope for them to develop innovatory practices – just as Japanese high school girls had created unforeseen social uses of the pager before the mobile appeared (Ito 2005). Maybe there will be new practices relating to images taken using the mobile phone or some combination of mobile phone and Internet use – both seen in case of the Korean *Cyworld* where pictures taken with camera phones are posted to web-pages. In other words, in future studies of children's mobile use, we would expect to see some changes from the picture painted in the earlier description at the start of this chapter. But we can also ask the question of whether some forms of innovation in the practices of mobile use by one cohort of youth are more wide reaching than the innovation of another at another time period. The other side of coin is the question of what happens when the youth who pioneered texting themselves grow older? What changes because of entering a different life stage and what remains because it was introduced at this stage in their lives? Obviously this no longer involves research on youth per se.

Tensions in parent-children and peer relationships

The picture painted so far does not quite do justice to negative elements in parent-child and peer relationships, whether these are to be characterized as conflicts, tensions, issues or by using some other label. If we start with parent-children relations, a 5-country European study demonstrated the considerable tensions arising because of the costs of children's use of the fixed line when this was paid for by parents (Haddon 1998; Haddon 2004). Subsequent research has shown how some of these issues continue with the mobile phone, as parents attempt to impose limitations on their children's calls and texts when they are paying the bill (Haddon and Vincent 2004). Another continuity from the fixed line is that incoming calls to the mobile can be disruptive, as when they arrive during mealtimes, and so in at least some households this gives rise to another set of rules. Finally, there is the issue, relating to the section above, of when children are allowed to have mobiles at all where details of current 'negotations' in households has received little attention in a period when the age at which children have mobile phones is falling.

When we turn to the case of peers, animated text messages as well as MMS images of nudity and pornographic sexuality are a flourishing phenomenon among teens and in particular males (Brandtzæg 2005). Further, illicit and covertly captured MMS images of unclad people in showers, toilets etc (Tikkanen and Junge 2004). In one sense, the illicit use of MMS discussed above is in reality a type of chicanery that has been a part of telephony that also includes obscene and threatening telephone calls. However, in the case of landline telephony there may be ambiguity as to who is the intended target. The targeting is more precise with mobile telephony (Katz 2005). Kury et al (2004)have found that 11% of German women (of all age groups) have reported receiving obscene calls via their mobile telephone. Then, there is work on the use of the mobile phone as an element in bullying (Campbell 2005; Tikkanen and

Junge 2004) and so-called happy slapping (Brough and Sills 2006). This is obviously a serious problem, but it is also a problem that is easily played upon in the tabloid press.

Finally, analysis has shown that for a small portion of teens, there is an interaction between the mobile telephone and various forms of criminal, or at least illicit, behaviour. In some cases this has the character of testing boundaries. However, in other cases the link is between mobile phones and drug use, fighting and theft, including the theft of mobiles from peers (Ling 2005c).

It is important to keep a critical eye on parent-children as well as peer interactions in order to avoid the trap of painting too rosy a picture of these relationships. As these, for the most part relatively recent, references show, the mobile phone becomes involved in family and peer relationships which are not always harmonious.

Diverse youth

In the 1960s in many Western countries the increased spending power of youth and related transformations in cultural industries to cater for them (e.g. the music industry) led to a discussion of whether there was a new 'youth culture'. We can learn the lessons of research in that period which, understandably, noted a certain diversity in the experience of children and youth even within countries. Class or socio-economic status still made a difference to young people's experience, as did such ethnicity. Occasionally contemporary studies of children, youth and mobile phones pick up on this diversity, but many of the studies in this field do not, emphasizing instead the commonalities in the experience of young people, especially within countries. Yet, even such a dimension as the sociability of teenage peers, singled out in mobile phone studies, varies. For example, one French study produced a typology of relationships between teens and patterns of phone use, including teens who socialized little with their peers (Martin and de Singly 2000).

Two dimensions of the diversity of children's mobile phone experience in particular warrant further attention: cross-cultural variation and gender. As regards the first of these, different cultural norms, values, social structures, communications traditions, time structures, material culture, etc. can have a bearing on how we experience information and communication technologies in general (Thomas et al. 2005). For example, in Japan the heavy regulation of mobile phones in public space such as the transport system means that since voice calls are prohibited many Japanese youth resort to using solely text in those circumstances (Ito 2005).

Apart from 'cultural' considerations the technology supply side is also important. For example, many observers have noted how mobile phone use and texting is less developed in the US than in Europe and Asia, but this in part reflects the whole development of the mobile in the US and related policy decisions that shaping that history, including a lack of standardization (Agar 2003). From the start the user paid for mobile communication in Europe and Asia whereas the receiver paid in the original US system, meaning users were less likely to leave the mobile on all the time. To take a Korean example, the home-page system *Cyworld* arguably encouraged more use of camera phone, as people posted pictures from everyday life and to some extent encouraged the use of the mobile for checking up on what was happening on this online world. Meanwhile, the availability of the Japanese iMODE offered youth email rather than facing the constraints, but also creativity, of SMS. In other words, different youth have varied experiences because of the different services and technological possibilities open to them.

Turning to gender, much of the work noted earlier in this chapter focused on adult women, rather than girls, especially noting the role of mothers maintaining links with family and wider social networks. This pattern was empirically demonstrated in a European 5-country, but this research also drew attention to the how the different gendered patterns of communication with the fixed line changed according to life stage and circumstances (Claisse 2000). There was actually much less difference between male and female teenage phone use compared to later periods of life, with girls making slightly more calls than boys (to parents) and since they are chatting more, there was a slightly longer duration of calls. But the emphasis is on 'slightly' and the point is that one cannot automatically read off gender patterns in children from a knowledge of adult behaviour.

Surveys on the use of the phone by youth and mobiles regularly have a section on gender, and in addition some qualitative studies refer to this dimension. But as the authors of one study noted, if by the late 1990s and early years of new century adoption rates are pretty much the same for boys and girls, maybe this itself needs explaining given the common finding of different gender patterns of ICT use (Henin and Lobet-Maris 2003). The reason probably lies in a process that appears to be equally true for adults. Early in the adoption cycle, males are often more likely to adopt mobile telephony (Ling 2005b). Males have also been seen as the innovators with regards to various services. This has been reported as reflecting an interest in technology as such (Henin and Lobet-Maris 2003; Lobet-Maris 2003). However, shortly afterwards women catch up when the artefact is seen less as a technology and more as a tool. This seems to be true also for other technologies such as Internet access (Haddon 2004). The whole argument is given further credence in a Norwegian study that asked what youth valued in a mobile (Skog 2002). Boys were more likely to mention technical features, while girls referred to functions such as ringtones. More generally, other studies have agued that that girls are more interested in the interactive side of mobile communications, seeing the potential for social networking (Skog 2002) as well as the aesthetic dimensions (Oksman and Rautiainen 2003). Girls' practices such as decorating their phones, in particular noted as 'Technocute' in an Asian context (Hjorth and Kim 2004) also underline the effort to downplay the technology dimension This has been characterized as performing gender when appropriating the object, detaching some technological connotations.

In the literature a number of other gender dimensions have been noted, such as the manner and basis of mobile phone acquisition. For example, in an early Norwegian study, girls were more likely to loan the mobile than boys, and parents were more likely to pay for their use than for the use of boys (Ling 1998). In a Belgian study, girls more often than boys received the mobile as a gift from parents (Henin and Lobet-Maris 2003). It remains to be seen whether these turn out to be features solely applicable to the early years of the mobile mass market, more true in some countries than others. Various studies have noted gender differences in the style and content of communication – i.e. girls' more 'expressive' communications, longer texts messages, expressions of friendship and love, etc. These patterns may well fit patterns of communications by the fixed line. Lastly, differences in the amount of use is perhaps more intriguing. A number of studies suggest more 'intense' use by girls. For example, German and Belgian studies have noted more calls by girls and more SMS communications (Döring et al. 2005; Ling 2004). However, before speculating whether this somehow reflects differences in boys' and girls' networking, one would have to ask why such gender differences exist in relation to the mobile phone, when only 'slight' differences existed in relation to the fixed line, as noted above. Moreover, to put gender into an age context we must always remember that we are discussing the specificities of gender differences within youth: for example, both boys and girls text more than adult men and women.

Social consequences

Various potential social consequences of new mobile phone practices have been noted in the literature, some applying more specifically to youth. The first argument is that mobiles have changed the nature of (teenage) meetings in various ways. One analysis of Japanese youth, shows the use of mobile communication to anticipate and to summarize physical encounters, as young people phone in advance to talk about the meeting, and continue talking about it on the mobile after they have departed (Henin and Lobet-Maris 2003). In a sense, the boundaries of the meeting can become less clear. But probably the dimension discussed a little more is spontaneous, fluid nature of planning if, where and when to meet, noted earlier in this chapter. While this development may well be common, this flexibility is probably itself affected (both enabled and limited) by the particular time constraints and time commitments of (different kinds of) youth (Haddon 2004). This needs more exploration. Moreover, is the change always welcomed? One Singaporean study showed how in certain circumstances this process of negotiating meetings on the fly can also be problematic and frustrating (Chung and Lim 2005).

Next there is the argument that there is now greater mutual awareness among teens because of the mobile, as indicated in Licoppe's idea of 'connected presence' (2005). The low threshold for interaction allowed by the mobile phone (the ease and low cost of texting in particular) means that teens are in connection with each other on a quasi-perpetual basis. There is a greater degree of insight into each other's affairs and there is a willingness to report on thoughts and situations that, were contact more irregular, would not survive the vetting process as to things that would be discussed. In other words, the ability to fill the gaps between co-present sessions is greatly facilitated by the mobile phone (2004; 2003) something that could also be accomplished in the pre-mobile world with various combinations of pagers, telephones, answering machines etc. (Lobet-Maris 2003). While this may be so, what is lacking in this field of research is some discussion of the fact that teenagers might also want some privacy from their peers, not just from parents. Hence, we have questions of for whom privacy is more important, and how do youth manage at times to escape what can also be considered to be mutual surveillance?

Third, there is the suspicion that mobile communication leads to bounded social networks or a type of "ghettoization." For example, de Gournay and Smoreda write "At a local level [the] homogeneity of social circles produces a "ghetto-like" social form: we discover some of the elements of the ghetto phenomenon, but without the cultural and ethnic characteristics of its traditional urban form" (2003, 69). If we are seeing more intensive communications between smaller social networks does this kind of sociability excludes other forms? The notion of 'walled community' (Ling 2004) conveys the idea that when communication is increasingly aimed at a limited number of people we know well, this limits our opportunity to 'establish new ties in one's co-located situation'. As French researchers arguing in a somewhat similar vein have pointed out, since people's attention is limited, this shift in the balance to a more 'connected' relationship with an intimate few can be at the expense of making the effort to interact with strangers (Rivère and Licoppe 2003). The jury may be out on how much this process is developing, but it is an interesting line of enquiry that merits further research.

Conclusions

Like all reviews, this is a snapshot covering the mobile research literature of the last few years. But the mobile phone as an artefact is itself evolving, as are the services associated with it. The mobile telephone already has the potential to be our personal calendar, personal music player, call history, message centre, to-do list, photographic album and in the future it can conceivably even have the function of their pocket book and their identity card. Add to this the on-going initiatives to develop the mobile platform for TV and Internet access and in a few years time we might well expect some new strands of research on mobile phones in general and their relation to children and youth in particular.

That said, the review has attempted to summarize the common strands in this literature, as well as raising questions about that research, identifying frameworks, noting gaps and indicating directions for future work. We have seen how children's experience of the mobile phone can be contextualized by understanding how children's experiences (and perceptions of childhood) change more generally over time. We need to be more sensitive to the problematic sides of parent-child and peer interactions. It is important to be aware of the diversity of youth, their circumstances and their experiences. And there are a range of potential social consequences deserve not only more research but critical attention.

To end on a slightly different note, this literature on children, youth and the mobile phone has arguably put youth especially on the academic map in a new way. There has been a tradition of studying children and ICTs, with perhaps the research on television being the most obvious example. In the late 80s and early 90s there was some, but relatively little research on children and fixed line telephony and some material on children and PCs. But the mobile literature has arguably picked up on the innovatory nature of youth, as they established new practices and hence the range of studies of this group across a number of countries. Moreover, there activities have even had ramifications for theoretical frameworks. Within the social shaping of technology tradition, for example, SMS practices are often cited as the best and most widespread contemporary example of unanticipated innovation from users. Meanwhile, the domestication framework, or certain strands of it, were forced to look beyond the household, to understand some of what could be considered to be the collective domestication processes taking place within these peer networks as they interacted around the mobile phone (Haddon 2003; Haddon 2004). Clearly, then, the mobile phone and children/youth literature has already made a significant contribution to the wider ICT literature, even if there is considerable scope for further development.

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