

**EMPIRICAL RESEARCH ON THE DOMESTIC
PHONE:
A LITERATURE REVIEW**

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This review was originally prepared in January 1995 for TeleDanmark Research (Mads Christoffersen, TeleDanmark Research, Lyngsø Allé 2, DK - 2970 Hørsholm, Denmark). The particular audience in mind was new social science staff joining the TeleDanmark Research team. This document was to serve as a form of introduction to this field of research and also an index for the various reports that I assembled for TeleDanmark Research during a two month visit to their establishment. Subsequently TeleDanmark Research have given permission for the CULCOM to publish this material as a working paper so that it can be of use to a wider audience. This is appreciated.

1. Introduction

1.1. Background

This report reviews the types of data available concerning how the domestic telephone is experienced. The aim is to capture the role and meaning of the phone in the home - which entails more than mere patterns of usage. Until the late 1980s the domestic phone was a medium neglected by the social science community and relative to TV it is still under-researched. However, the last few years have seen the emergence of a telephone literature. A certain amount of this writing is future orientated, in all likelihood spurred on by (a) the plethora of new and potential telecom services and equipment, (b) telecoms companies' greater awareness of the importance of home users as a market and (c) the companies' perceived need to know their markets following liberalisation, privatisation and the move to a competitive environment. Possible telecoms products usually figure too in the writings of various futurologists, and have recently stirred the imagination of some academics to discuss the changing meaning and role of the phone in everyday life (e.g. White, 1990).

The complaint about such writings, usually justified, is that such speculations are not sensitive to the social history of the domestic phone (from which lessons could be learnt) nor are they grounded in a knowledge of how, mundanely, the telephone is actually experienced now. More historical accounts are becoming available, as are studies of the telephone in contemporary everyday life - some of which have been instigated or supported by telecoms companies. It is this latter, empirical, work which is reviewed below. Much of it is of a quantitative nature, and the aim here is to map out the types of questions asked, the types of themes researched, the main arguments pursued and how that evidence is used. In other words, this report charts what is available and where to find it, where the gaps are, to what extent there are any problems with this material and, if appropriate, how these data may be useful to a telecoms company. Sometimes this review notes some of the finer details, some of the findings in terms of percentages, but given that there is so much 'data' it would be pointless to cite every figure - these can be located at a later stage if there is a particular reason to do so.

One last introductory point concerns the background of the author in conducting qualitative research on the domestic phone, amongst other technologies, in the UK. A programme of research conducted first at Brunel and later at Sussex University has been developing theoretical frameworks for understanding consumption based upon empirical research of strategic social groups. This work is described in a separate section towards the end. However, throughout the review when discussing quantitative data or claims emerging from such research, reference will be made to the British material if this adds some insight.

1.2. Quantitative Measures

There are a few preliminary remarks to be made concerning statistical data. The first relates to figures about residential or private use of the phone. In practice, there is often some overlap with use for work purposes. While many people may try to keep their domestic and work lives distinct and hence do not appreciate being called at home, others often make and receive work related calls on their home line. This is probably increasing to the extent that there is a growth in teleworking or mobile working using home as a base. (The specific experience of teleworkers will be discussed below, in section 12.2). Meanwhile, French

findings indicate that almost half of all employees use the telephone in the workplace for making and receiving personal calls (Perin, 1994:6).

The other observations concern the need to avoid positivist assumptions about taking data at face value. Instead, it is important to appreciate the social factors shaping the construction of seemingly 'hard data' a point which a few writers in this literature touch upon (For a further discussion of the processes shaping data, see Haddon, 1990). For example, in one French study the author speculated that some teenage participants might be intentionally falsifying some of their claims about the number of calls made from home and their motives for making those calls because they did not want their parents to find out about certain calls (Claisse 1989:273-74). We need to ask of other groups whether there is ever any possible motivation to present their activities in a certain light. Second, a substantial number of those studied had difficulties in classifying their calls according to the categories offered to them by researchers (to be discussed in more depth below, section 4.1.2.). This should make us a little wary of being overconfident about the precision of such data, especially when different researchers use different sets of classificatory categories. If we look at another technology, the home computer, many market researchers conceived of this as an individual possession when conducting surveys to investigate, for example, whether more men than women or more people of a particular age group had these machines. In practice, there may be a consensus in some households that a computer is a particular person's possession. But in other households the PC is 'for the family, or 'for the children', or else possession remains contested and ownership unclear (Haddon, 1990:22-23). While the basic phone has not been researched as a personal possession, some surveys have certainly assumed that the mobile phone belongs to a particular person that may well not do justice to the complex realities of different households.

The final reasons why seemingly 'hard' quantitative data may be 'softer' than they first seem concerns reliance on memory and the introduction of evaluations. One Berlin study noted that statistically there should be an approximately equal amount of incoming and outgoing calls over the whole of their sample, even if individual households or social groups had a different balance (Schabedoth et al., 1989:104). But they found that more people (56%) thought that their last calls had been made by them. The researchers argue that this may reflect the disposition of people to remember processes where they were active: in this case, initiating the call. Similarly, when remembering or attributing motivations for calls, those surveyed were more likely to say that they phoned someone for a chat or else that they were seeking information rather than attribute either of these motivations to people who called them. In a different part of their survey, 60-70% of women participating on behalf of their households thought that they used the phone most often, but only 30% of men answering questions about their households said that their wives used the phone more (Schabedoth et al., 1989:108). While the perceptions may be interesting in their own right it is important to bear in mind that at least some questions do not lead to data which simply mirror reality.

2. Possession of Telephone Equipment

In Western countries it is usually possible to find information concerning the most basic question of what proportion of people have a phone (a comparison of international trends can

be found in Georgiades, 1990: 226). Details on other phone equipment are more patchy. These include the possession of second or third phone lines, second or third phone handsets, whether phones are bought or rented, the penetration of cordless phones, styles of phone, features of phones (pulse tone, speed dialling etc.) and how many people have ancillary equipment such as answerphones and fax machines.

In the material reviewed, the countries about which there was most detail were the US, Germany and France. As regards equipment, the only French data concerned the buying of handsets (nearly 15% had bought them instead of renting - Perin, 1994:2). There is a limited amount of such German data from a study in 1989 (Schabedoth, 1989:113) and some data from a later German one in 1991 (provided in Dordick and LaRose, 1992:52). There are considerably more US data (Dordick and LaRose, 1992:5, 13-18). In addition, the US research segmented its sample according to Nielsen Station Index (NSI) (Dordick and LaRose, 1992:4-6). NSI categories are a combination of age, whether there are one or two adults in the household, their age and the presence or absence of children (Footnote 1). At times, the authors also draw up market segments according to income. Broadly speaking, and with some exceptions, it was more common for younger households and those on a higher income to possess equipment beyond the plain old telephone (use of such equipment and telephone services will be discussed later, in section 6).

3. Amount of Use

Various researchers have segmented users in terms of demographic variables such as gender and age. The specific findings concerning men and women, the young and old ect. will be discussed in more detail in section 5.

3.1. Heavy and Light Users

A number of studies have tried to determine which sections of the population are 'heavy' or 'light' users. Australian researchers have attempted to show this pattern in terms of demographics (Noble, 1990:183), in terms of psychological factors such as being an introvert or extrovert and whether people are good 'verbalisers' or not (Noble, 1989:182-83), and in terms of lifestyle variables such as the extent to which users go out of the house and experience face-to-face contact (Noble 1990:182). This research has also explored what the phone means for such users (Noble 1990:184-85). In the US, a factor analysis of phone calls has been used to identify a variety of heavy users, such as 'homemakers', 'enjoyment seekers', females, moderate networkers', and those aged 25-34 (Dordick and LaRose, 1992:48-51). One variant on this type of research (reported in Dordick 1989:233) is the search for the 'telephone personality', i.e. the person more likely to select phone contact in preference to face-to-face contact.

3.2. Factors Affecting the Amount of Use

One large French study found that the main variables affecting the amount of use were type of household and gender. As regards the first of these, single person households phoned twice as much as those occupied by several people (Claisse, 1989: 268; Perin, 1994:5), which may take on more significance given that several writers have noted the growth of single person households as a proportion of all households (e.g. Geogiades, 1970: 234). While some of this growth reflects the increasing number of older people, a proportion of whom

live alone, this development may also reflect some change in lifestyles. The French researchers speculate that the greater number of phone calls by single person households relates to the lack of someone to talk to in the home, isolation, and hence having to reach out of the home to converse, exchange information etc.

Women phone more than men and for different reasons, but since this needs more qualification and clarification the issue of gender will be examined in section 5.1. In that French study, secondary variables influencing amount of use included age (the older and younger telephone less - see section 5.2.), class (see section 5.3) and whether people are working (which was mainly a discussion of housewives phoning more, to be examined in section 5.1.). The most detailed US study considered the amount of usage in terms of expenditure on phone bills and found that the only market segments spending less than average were the two elderly ones (Dordick and LaRose, 1992:7)

4. Patterns of use: General

4.1 Types of Calls

4.1.1. Dichotomies: Instrumental and Intrinsic Types of Call

Whether discussed terms of reasons for making calls, motives for making calls, purposes of calls or functions of calls, one approach to categorising different calls is to divide them into two main types. These types have been given different names by different writers: instrumental vs. intrinsic (Moyal, 1989:7), functional vs. socio-effective or relational (Perin, 1994:3) or personal-orientated vs. thing-orientated (Claisse, 1989:263). To put this dichotomy into a historical context, in the early years of telephony most of the telephone companies saw the phone as being a useful tool, even for households, rather than as a medium for socialising. But at various points in time the different national companies started to appreciate the significance of intrinsic, sociable calls and to actively encourage this form of usage.

French, German and US studies all seem to agree that households on the whole make at least as many instrumental calls as intrinsic ones, if not more (e.g. including calling family and friends to making arrangements to meet, solve a practical problem etc.) (Perin, 1994:3; Adler, 1993:285, 291; Dordick and LaRose 1992, 1992:58). The French researchers use these data to make a theoretical point. Many writers have talked about the phone as a convivial, intimate tool that can be used to enhance personal relations. In practice, it would appear that on balance the domestic phone is used more instrumentally, as a means to organise daily life (Claisse, 1989:263). There is one further difference between the two types of call. Instrumental calls provide a way of saving time, of winning time, or overcoming time constraints by action at a distance, while intrinsic calls are a way of spending time, a particular use of free time (Claisse, 1989: 265). Statistically, intrinsic calls are twice the length of more instrumental ones.

However, there is problem with such a dichotomy: the two types can blur in cases where a phone call is made for a practical purpose (i.e. is instrumental) but this goal is accompanied by a good deal of social chatting as well - which in the end may take up most of the call time and be the main benefit the caller feels they obtained from the call. Similarly, in the middle of a social call, some practical arrangements may be made. So offering respondents just the two options to classify their calls can be misleading. French researchers have tried to retain

some of the simplicity and usefulness of the dichotomy but instead offer the variant of a 4-part continuum ranging from purely intrinsic, through predominantly intrinsic partly instrumental, and prominently instrumental to purely instrumental (Claisse, 1989:262).

4.1.2. Taxonomies of Call Types

Other researchers have produced much more detailed and differentiated typologies of calls. One approach to generating a list of call types has been to allow respondents to characterise in their own words their reasons for making phone calls. Such a list can then be categorised into a shorter taxonomy of motives for calling (Noble, 1989). Plausible categories can emerge, and to an extent different researchers can produce similar typologies. But inevitably there will always be differences in such taxonomies as different researchers draw the boundaries around and characterise categories differently. The other, more common, approach has been to supply the list of call types and then the participants in the study have to categorise their telephone calls accordingly. Examples of this include a Japanese state survey (Nojiri, 1990: 165) and a US survey (Dordick and LaRose, 1992:43-45). The US study went on to analyse the different patterns of call types made by different market segments.

A large German study noted that the problem with this latter approach was that participants found it difficult to classify 50% of their calls according to the list offered to them (Adler, 1993:284). A similar French study also noted both the problems of devising the initial typology and the difficulties participants then had in classifying their calls (Claisse, 1989:59). Therefore, it would seem that while the broad picture generated by such procedures may be somewhat interesting, and some very general patterns may be visible, any such data will be fundamentally ‘soft’ and not stand up to the rigours of too much sophisticated, mathematical manipulation and analysis.

(For further details of the German typology, see Footnote 2, and for the French one, Footnote 3).

4.1.3 Market Segmentation According to Call Type

The US researchers used factor analysis techniques upon data about call types and statements concerning how people feel about the phone in order to derive another typology of users (Dordick and LaRose, 1992: 33-38). The market segments arrived at by this process include ‘utilitarians’(who mainly use the phone instrumentally) ‘enjoyment seekers’ (who mainly use it intrinsically) and ‘telephone apprehensives’ (who are nervous of the phone). The researchers go on to say where, demographically, people with these orientations are most likely to be found (e.g. enjoyment seekers tend to be young and single and concentrated in working class jobs). Finally they discuss the phone use patterns of these different segments and their interest in new telecom services. Although not specifically commenting on these statistic operations, Australian researchers reviewing this US study note some contradictory results: one statistic showed that those living in single households did more chatting while another showed the market segments ‘starting out singles’ and ‘mature singles’ made below the average number of social calls (Gillard et al., 1994:3). More generally, there are grounds for concern that this may well be an example of using sophisticated, mathematical manipulation and analysis on soft data.

4.2. Who is called

Most studies agree that the majority of telephone conversations are conducted with familiar people. However, it is possible to detect variations in the statistics even within a single country. For instance, one French study found that 50% of calls were made to family members, 30% to friends (Perin, 1994: 3) while another found that 40% were to family members, 36% to friends (Claisse, 1989: 259). German details are even more varied, with one study conducted in 1989 finding 28% of calls went to family, 31% to friends and acquaintances (Adler, 1993: 287), while one conducted in 1991 found 30% went to family members but 50% went to friends (Dordick and LaRose, 1992: 58). The US study found 30% went to family members, 30% went to friends (Dordick and LaRose, 1992: 40-41). The latter researchers attempt to make an international comparison, but in view of the significant variations in figures within countries, this could well be a dubious form of analysis (see section 7). The American research goes on to show differences in the pattern of who is called by phone according to demographics, market segments and geographical regions - but the data may again be too 'soft' to stand up to such detailed analysis.

4.3. Spatial and Temporal Patterns of Phone Use

Telecoms companies can easily keep track of the basic patterns of telephone traffic, and sometimes make this data available. For instance, in terms of spatial patterns, the companies' equipment can automatically monitor the proportion of calls that are local, longer distance or international - which provides relevant material for planning revenue from different tariff structures. The same is true of the data concerning the timing of calls and duration. For instance, some data are available concerning the timing of peak use in the UK (Fielding and Hartley, 1987:112) and France Telecom staff are able to observe that their customers make one call a day on average from their homes - but that there is a large variation, with 22% making more than one call, and 17% making fewer than one call a week (Perin, 1994:3). However, such data have more usually entered the public domain from survey-based studies. Such surveys also occasionally provide details such as the duration and frequency of phoning by different groups - e.g. teenagers (Skelton, 1989:294).

For some time there have been discussions of the concept of 'psychological neighbourhoods' where communications enable regular contact with those living some distance away. This allows these people to become our relevant 'communities' - as opposed to locally based ones. (We will return to this theme when discussing the experience of children and the unemployed, in sections 5.2 and 5.3.) However, actual data from surveys suggests that we should not overstate claims about how much contact people have with those at a distance. Most surveys, from a variety of countries, show that the majority of telephone calls are relatively local (Dordick, 1989:226; Claisse, 1989:264). In France, 70% of calls are less than 100km, (Perin, 1994:3). In the US 70% of calls were made to people within a 5-mile radius (a study cited in Fielding and Hartley, 1987:113). In a Berlin study, over 80% of the sample said that their most frequent calls were to others living in the city (Schabedoth, 1989:102). The exceptions were people who had moved house in the last 10 years and who make more calls back to their old friends, more so households with teenage children (Adler, 1993:293; Fielding and Hartley, 1987: 113). But on the whole, most authors conclude that the phone is used more for organising daily life, for contacting people with whom we also have frequent face-to-face contact. It constitutes an extension of and an intrinsic part of other 'locally' based social activities, and is not a replacement for them.

It is worth departing for a moment from the empirical details of telephone traffic to look at more speculative writings, such as, but by no means exclusively, those concerning postmodernism. There is a body of literature that claims that our way of life and experience of the world is undergoing change - and this includes our relationship to time and space, among other things. The usefulness of such speculations is that they are wide ranging, they involve standing back to paint the broader picture. Such sweeping interpretations of details may prove to be incorrect upon closely inspection. Nevertheless, they can provoke further questions about changes in experience, the patterns of our lives and the nature of urban existence (e.g. Guillaume, 1994). Since such observations and characterisations are often expressed in very abstract terms, they have not, unsurprisingly, been embraced in consumer research. In fact, they have hardly been investigated by more empirically orientated academics. There might well be more to be gained by exploring, and perhaps thinking how to operationalise and evaluate, the implications of some of those writings.

4.4. The Emergency Phone

There is one special case of usage: non-usage. Even if the phone is not used, or used very rarely, subscribers may still consider it important that a phone is available to use, so providing a sense of security. The telephone in such cases has been called an 'option good' since people are buying the option to use it (Dordick 1989:232). In fact, Dordick argues that some of the elderly may well have a phone for this purpose and a German study noted how the telephone was usually considered a basic part of the household and was retained even if the tight budget of some less affluent households meant that it was little used (Adler 1993: 290). Certainly the mobile phone can take on this role (as noted in Adler 1993: 289) and there are some schemes in the UK which address this type of user, where certain mobile phones are programmed so that users can only phone the police or one of the motoring organisations in case of a breakdown. In some cases the British police have issued such phones to those perceived as 'vulnerable', such as women who have been attacked by ex-partners (Wood, 1993:5).

The phone as an option good is significant from a telephone company's point of view because revenue comes mainly from rental not usage. However, Dordick notes that this situation can be deceptive - such a phone may not generate many calls but may receive them, as with adult children phoning elderly relatives. In the case of phones issued by the British police, some of those women concerned could then receive social, supportive calls. This means that such phones can generate phone traffic but the revenue comes from someone else. The other point to note, which has again been raised in the case of mobile phones (Wood, 1993:20) is that a mobile which is bought with the intention of being an option good may actually start to be used regularly once people find themselves in more and more situations where it proves to be useful.

5. Pattern of Use: Gender, Age, Work and Class

5.1. Gender

Various studies in different countries have noted that women use the phone more than men (e.g. Japan, Nojiri, 1990: 165). One French study found that women spent 30% more time on the phone than men (Perin, 1994:5) while another survey in France concluded that women used it twice as much (Claisse 1989: 269). Most researchers acknowledge that this pattern stems from women's role in maintaining the household's relationships with the outside social world and passing on information, as is clear from some of the data on the actual content of messages (for France, Claisse, 1989: 269; for Australia, Moyal, 1989). This theme has been developed in feminist writings. Rakow's qualitative study in the US underlines women's role in holding together the fabric of communities (Rakow, 1987), while Moyal's combined qualitative and quantitative research in Australia emphasises the importance primarily of contact between mothers and daughters and secondly amongst networks of women friends (Moyal, 1989).

In recent years feminists have increasingly criticised approaches that merely discuss the situation of 'women' (and implicitly 'men') without specifying their other circumstances and the roles they perform. For some time feminists have noted that there are differences in the experiences of women from different class backgrounds, of different ethnicities and living in different cultures (see section 5.4). But circumstances such as age/stage in the life course, employment circumstances and the presence or absence of children also make a difference - and they certainly do make a difference to use of the telephone so it may be inappropriate to say there is one phone use profile for all women (Gillard et al., 1994: 2-3; Schabedoth et al, 1989: 106).

Some of the research has gone beyond the simple statistics concerning gender to explore differences between women. For example, both German studies (Schabedoth et al, 1989: 107) and French studies (Claisse, 1989: 269) noted how housewives made more calls than working women, calls predominately intrinsic in nature. The French researchers argue that this partly reflects the fact that these women are at home more (but this may also relate to any sense of isolation felt during the day or a certain pattern of sociability that these housewives built up - these matters would need to be investigated further). Many of the calls involved contacting parents and children, with the housewives also performing the role of secretary on behalf of others in the household (Claisse, 1989: 269 and 276). In contrast, working women had more of an equal balance between intrinsic and instrumental calls.

Australian research has also started to explore the effect of stage in the life course, pointing out, for example, that teenage girls do not follow the pattern of older women (Skelton, 1989:295) (see section 5.2). Other Australian work argues that a distinctive phase of gendered phone use comes not just with adulthood but specifically with taking on the role of homemaker (Noble 1989:181), which appears to be confirmed in Moyal's work where there is increased communication with the onset of childbearing and childrearing (Moyal, 1989:12). German researchers, on the other hand, note that retired women living alone were also heavier phone users (Schabedoth et al, 1989).

Much of this work focuses on intrinsic telephone calls between women living in separate households. But the UK qualitative studies also show that some of the more instrumental calls are generated by parents, more so mothers, when in the process of organising their young and teenage children (or being called up by those children). Recently, US researchers have noted this process in relation to the mobile phone - it enabled working mothers to keep

in touch with children, for example, when they first came home from school (Rakow and Navaro, 1993)

Besides usage, there have been attempts by German researchers to explore other dimensions of what the phone means. These suggest that women are more likely than men to miss the phone if they not longer have access to it. Second, when receiving unexpected calls in the night, women are more likely than men to assume that it is an emergency - the researchers arguing that this reflects their role as chief recipients of such calls and of bad news. Third, and very gender specific, it is mainly women who receive obscene and threatening phone calls. The researchers note the insecurity that this experience can generate, more so for women living alone (Schabedoth et al., 1989:110-12).

5.2. Age

The chief age-based groups studied have been the elderly over retirement age, teenagers and children. Although the NSI segmentation used in US work looks at different age groups between the young and old, most of the other studies do not examine the specific experiences of, say, 20-30 year olds or 50-60 year olds.

To start with data on the elderly, Australian research using an admittedly small sample has generated some statistics (Williamson, 1994). These include data on possession of and interest in acquiring telephone related equipment (the main item in both cases being the cordless phone), on services and phone features used (the main one of which was number memories), on types of phone (e.g. wall phones) and on special features for the disabled elderly (such as those people with hearing problems). There are also some data on frequency of calls made, when they are made, their duration and to whom they are made. As with the wider population most calls are to family and to friends. A majority of calls are instrumental, and the topics most often refer to family themes, although 'health' issues also figure strongly. A German qualitative study, with an even smaller sample because of the use of in-depth interviews, also generated some of the above statistics (Kordey, 1993). The telephone call topics concerning disability, declining health and general security - or rather sense of vulnerability - are repeated in some of the other German studies. German researchers argue that the plain old telephone can help to overcome these fears (Adler, 1993: 289) and play a part in enabling the more infirm elderly to maintain an independent life in their home. Also supporting this goal are the various telecoms based alarm services and the elderly have sometimes formed telephone rings to phone round to each other regularly and check that everyone is all right (Wald and Stöckler, 1991, 39-41)

French studies have noted that retired people phone less than average, and speculated that this may relate to cost considerations and to a decreasing - i.e. dying - circle of close peers (Claisse, 1989: 270). However, American research indicated the need to differentiate amongst the elderly, noting that it was the older elderly who phoned less, not so much the younger elderly (Dordick and LaRose, 1992:7). It is probable that we also need to be aware of a cohort effect here - more of the older elderly were less familiar with the phone in their younger days.

There is a more limited amount of data on teenagers and the telephone, leading some to argue that they have been a neglected group which has been subject to stereotyping (Skelton, 1989:294). Actually studies show a mixed evaluation. The US work suggested that

teenagers dominate the phone, and are the heaviest users in households (Dordick and LaRose, 1992:9). However, we would have to be a little wary of taking such results at face value since this was based on the evaluations and perceptions of parents - which may not totally correspond to reality. A small-scale study addressing actual teenagers in Australian context challenges the stereotype that teenagers in general are heavy users (Skelton, 1989:294). Reviewing earlier American studies, Skelton notes that teenagers with boy- or girlfriends can generate calls of long duration, and there can be a peak in phone calls when they initially come home from school, but overall they do not generate massive amounts of calls. In her own study she found that having fun with hoax calls is common and particular to this age group, but mostly the phone is important for sustaining interaction with school friends when outside of school.

Various French studies would tend to support her view, indicating that younger, as well as retired people, actually use the phone less than the 25-60 age group (Claisse, 1989:270; Perin, 1994:3). In terms of patterns of calls, teenagers are more likely to call those of the opposite sex. In terms of motivations for calling, it is argued they are more likely to phone out in order to escape from the family sphere (Claisse, 1989: 276)

Although excluded from most general studies of the phone, there has been some German work on children, although the age range blurs into the early teen years (Büchner, 1970). This research discusses the changing experience of childhood this century and hence of different cohorts of children. It traces the decline of street culture, where interaction was to some extent spontaneous with peers who happened to live nearby. On the one hand we have seen the rise of home-based leisure for children. On the other, and more interesting from a telecoms point of view, more free time is spent at a distance from the home both in after-school institutions (e.g. sports, clubs) and also with friends who live at a distance. Maintaining such social circles requires more co-ordination and planning, and children have become more dependent on being transported by adults. In this context, the phone becomes more and more essential not only to arrange meetings, which can be partly done at school, but to confirm them after negotiations with adults. Children, it is argued, are experiencing a more intense time economy, often having to say they have 'no time' and finding themselves under more pressures to 'save time'. In fact, this development acts as part of their socialisation into later adult roles as they learn to manage their time economy, schedule activities, make appointments and make commitments to others. In so doing they are learning a 'repertoire of cultural techniques' (Büchner, 1970:266).

In support of the argument that the phone is essential in the modernisation of childhood, the study cites empirical data showing how children use it to make arrangements to meet when as young as 4, and are usually using it independently at age 8 and 9. In their own study of 8-14 year olds, only 4% of children made no calls during a week, two thirds made up to 10 and a fifth up to 20. And in this age group, boys phoned more than girls. Most calls were local, to friends. In two thirds of cases the main reason for calling was to make arrangements to meet. This was more so in middle class families and rarely involved chatting for a long time (Büchner, 1970:269-71).

Lastly, French research makes some observations about changes in telephone behaviour over the life course. Amongst schoolchildren and teenagers there is little gender difference in the sense that there is an equal balance of intrinsic and instrumental calls. More familiar gender patterns, in terms of the balance of these two types of call, emerge in student days and

consolidate in adulthood. With the onset of retirement, older males move to a more female pattern, with their proportion of intrinsic calls increasing (Claisse, 1989: 272).

5.3. Work and Class

There are surprisingly few data referring specifically to class. It has never been a term much used in American research and because of the increasing universal access to phones researchers may have thought that class was of declining influence. French research notes that as late as 1980 there was a 40% difference between working- and middle-class households' possession of phones, but over 90% of households from both groups now subscribe (Perin, 1994:1)

Other French researchers argue that it is difficult to talk about class because gender is so much more significant - for instance, when housewives, unclassified by their own work, talk more than males of any class background (Claisse, 1989:270). Nevertheless these same researchers note that job status has some influence on patterns of use, and this term obviously has some class connotations. Entrepreneurs, higher-level employees and self-employed phone more than lower level employees and manual worker. Other research in France also suggests that there are more calls the higher the social class, which may in part be related to disposable income. But the authors speculate as to whether higher classes have a more diverse range of economic exchanges and simply show a greater willingness to use the phone (Perin, 1994:4). On the other hand, US data found no difference in phone patterns according to job status (LaRose and Mettler, 1990:26).

While older US studies found that calls decreased with higher income (Mayer, 1977, cited in Fielding and Hartley 1987:113), more recent US data suggests that income is a less significant factor (LaRose and Mettler, 1990:26). French studies agree with this (Claisse, 1989:271) arguing that telephony is also important for poorer sections of the population and is still relatively cheap (a point to which we will return to in the review of the UK qualitative work, section 12.3 and 12.4). There is some US statistical data on how income levels relate to phone expenditure, including types of expenditure (e.g. local vs. long distance calls) (Dordick and LaRose, 1992:7-8). This last research argues that the low income phone subsidy schemes, to which 20% of the low income households in their sample belonged, led to these households using the savings made on local calls to pay for more long distance ones, which were not subsidised.

US researchers have specifically examined the situation of homeworkers and the telephone (Dordick and LaRose, 1992:28-32) (to which we will also return later when discussing UK qualitative research, section 12.2). These researchers look at those working at home at least 8 hours a week, which will include part-time work and traditional homeworkers as well as teleworkers (usually defined as working with information and communication technologies). As a result of using such broad criteria, 20% of their total sample could be classified as homeworkers. The demographic profile of these homeworkers would fit in with the UK findings, where families with both younger children and children in their teens were over-represented. The reason for the researchers' interest in this group is that, as the findings demonstrate, these homeworkers make more calls than average, including longer distance ones, they have more phone related equipment, more computers and modems and more mobile phones. The US research examines the usage patterns of these homeworkers (e.g. Dordick and LaRose, 1992:41, 43)

The other work-related group that has received some attention is the long-term unemployed (Häußermann and Petrowsy, 1989). This German study aims to demonstrate just how important the phone is for the unemployed in the light of historical changes this century which have led to new patterns of geographical settlement: namely suburbanisation and the break up of local working class communities. These writers also note the greater consumer-orientated lifestyle, greater dependence on the market and hence greater dependence on income from formal employment (as opposed to what households could produce for themselves). At the same time, in a parallel way to the arguments about children, the unemployed are also more likely nowadays to move in social networks at some distance from them and based on common interests and lifestyle rather than neighbourhood.

Under conditions of longer term mass employment, informal networks and the active job-seeking by the unemployed provide more significant routes to re-acquiring work than do job centres. Therefore, it is important, via the phone, to stay in various social networks so that the unemployed can find out about work opportunities, can be recommended by personal acquaintances should a vacancy occur, can make informal enquiries and to be contactable by potential employers. The phone is also important for such matters as sorting out pensions and other benefits and finding out what documentation to bring to social security interviews. Meanwhile the phone can be vital in managing to get some employment in the informal economy for the quasi self-employed. On the consumption side, the phone can be a significant resource for finding out about special offers when trying to manage on a reduced income. Finally, it can help as a psychological support, especially given the greater stigma that has accompanied the break up of supporting communities and the individualisation of how unemployment is experienced. The authors add that the phone is as important for the unemployed as anyone else in terms of making arrangements to meet - they may have time to spare, but they must synchronise it with others and hence plan their time. It is often through the phone that people are invited to a range of social events such as coffee gatherings, sports or family celebrations, etc. and so without one it is easy to drop out of society.

Having drawn upon a number of studies of unemployment in the construction of this argument, the authors eventually turn to various official statistics on phone use and possession to demonstrate how many unemployed do use the phone in practice. But they also identify those most likely to be without a phone - single males, and especially the older unemployed.

This study, although involving a limited amount of quantitative data, has a wider salience. The researchers make the general point that while the phone has enabled geographical relocation and new forms of social networking, it has at the same time become a necessary condition for maintaining these networks and patterns of contact. The more widespread the phone has become, the more difficult it is to be without one. This argument, that the phone is nowadays important for citizenship, is used to make a case for the state provision of phones and perhaps some state support for the costs of usage. However, this point could equally well apply to groups not necessarily thought of as 'the unemployed' - such as the female unemployed who have less visibility, certainly in official statistics. Many of these points would also apply to those on a low income even if they were working. And they certainly apply to the lone parents in the UK study, many of whom were on a form of state benefit because of their children, and hence not technically classified as unemployed. However, they still wanted to work to earn some extra money. They too could all too easily drop out of social

networks, they appreciated psychological support under difficult conditions and the experience of stigma and in addition they sought childcare opportunities as well as work one.

5.4. Other Factors

As regards ethnicity, Moyal notes the specific patterns of phone use by 'new Australians'. Because of recent immigration, Australia has a high proportion of inhabitants who were not born in the country. Focusing on migrant women, Moyal notes how these are heavy users of the phone despite the fact that many of them had not had access to phone before coming to Australia. They use it both for instrumental purposes, such as seeking information about their rights from various agencies and accessing welfare services, and intrinsic ones, using the phone to help maintain their community links and reduce the sense of isolation in an unfamiliar culture. They were also likely to make calls back to their country of origin, more so as they settled in Australia and as their incomes increased (Moyal, 1989: 20-22). It is perhaps not surprising to find that Australian migrants not proficient in English are more likely to avoid answering the phone and leave that task to their more proficient children (Noble, 1990:177)

There has been a limited amount of work on geographical differences. Regional variations in statistics were touched upon as a variable in one US study (Dordick and LaRose, 1992: 41, 43). One Australian study examines the effect of the rural-urban divide, noting the greater importance of the phone for rural women who often live in some degree of isolation and have less chance for travelling to visit friends and relatives. Often their children are living away from home at distant urban schools, which provides another strong motivation for using the phone (Moyal, 198:2-25). Finally, there has been an American qualitative study of the role of the phone within the value system of a very specific community: the Amish (Umble, 1992)

One last factor that has been examined in a French survey is the size of social networks: those people with larger networks phone more (Claisse, 1989:271). For some groups with more limited local networks or lack of mobility phone calls can act as a compensation for isolation (e.g. for some elderly and lone parents at times: see section 12.3 and 12.4). On the other hand, studies such as the French one have been cited to suggest that more often the phone does not function as a substitute for personal contact but instead is used more by those who have networks of friends with whom they are already in regular face-to-face contact. In other words, the phone is complementary to this form of contact (e.g. Gillard et al., 1984:24)

6. Beyond the Basic Phone

In contrast to the earlier discussion of what telecoms equipment is possessed by households (section 2), this next section indicates the data available on usage of and attitudes to equipment, phone features and services beyond basic POTs.

6.1. Use of Equipment

There has been a limited amount of research on the answerphone. For instance, in one German study it was noted that 41% of the sample felt that it was unpleasant to talk to answerphones and about 23% hung up straight away upon hearing the machine, without while a further 18% listened to the instructions but rarely left a message (Adler, 1993:294-6)

. There are some US data on who uses answerphones and faxes (Dordick and LaRose, 1992: 45-46). The experience of these machines was also examined in the qualitative UK study (Haddon and Silverstone, 1993) and there is a Norwegian qualitative study of answerphones (Berg, ?).

There are few statistics in the material reviewed concerning the use of phones with modems and computers. There is likely to be more information on Minitel in France, but that was not among the material collected for his report. There are figures charting subscriptions to the UK Prestel videotex system, plus some glimpses of ways in which electronic messaging is used in what is mainly a study of the social shaping of an ICT (Cawson, Haddon and Miles, 1995). Lastly, there is some qualitative research on the experience of Minitel in Norway (Berg, 1994) which uses some of the UK Sussex University theoretical framework.

6.2. Use of Services

Services include telecom services such as call waiting, call blocking, itemised billing and information and premium rate services. There appear to be more data on usage in the US (Dordick and LaRose, 1992:5, 13-18, 45-6), which also show who uses what according to the NSI segmentation scheme. Broadly speaking and with some exceptions it is more common for younger households and those with a higher income to use such services (Dordick and LaRose 1992:21-27). There are also some data on people's interest in services in Germany (Dordick and LaRose, 1992:53-54) and in the US (Dordick and LaRose, 1992:21-27). Services were also examined in the UK Sussex qualitative study (Haddon, 1994).

7. International Comparisons of Phone Equipment and Usage

Cross-cultural comparisons are becoming more salient for increasingly privatised telecoms companies as they try to (a) see what lessons can be learnt from other countries and (b) see whether they might be able to operate in some way in other countries. While there have been a few attempts to compare quantitative data, little work has been done systematically to explain or even identify the cultural, economic and social factors that may lie behind different patterns. One early gesture towards this was a brief illustration of the very different situation between Western telecoms and those in India (Noble, 1990:178-79).

The easiest and most reliable comparative data to obtain are measures of penetration rates, although some such data combines both residential and work subscriptions (e.g. OMSYC, 1992). There are French survey data on the average number of residential calls per week, time spent on the phone per week and cost per week (Claisse, 1989: 268), and France Telecom data on the number of calls per week (Perin, 1994), which is likely to be more reliable since it is a statistic which is probably automatically generated by the telecoms equipment and billing procedures. Some equivalent survey based data can be found for use in the US (Dordick and LaRose, 1992:7) and Japan (Nojiri, 1990: 165). The details of how the figures were generated in such surveys are not always provided, so it can be difficult to evaluate such statistics. There are some comparative data on per capita possession of equipment, but again these do not disaggregate residential and business use (OMSYC, 1992).

The difficulties of making comparisons between data become more apparent when we look to data in which those being surveyed make judgements (a problem noted in section 1.2.). For example, researchers in the US, France and Germany have tried to draw up comparisons of

who is called and for what purpose (Dordick and LaRose, 1992:57-58). Apart from the fact that the surveys conducted in the different countries were not quite comparable, we have already noted (in section 4.2.) that there is considerable variation between different surveys even within the same country! Hence, apparent statistical variation between different countries may be more an artefact of the actual research process than reflect real cultural differences. And it is very difficult for those not involved in these studies to really evaluate the differences without access to a good deal of information about the methodology. Sometimes some details are provided, but even so many decisions and observations about the research process probably go unreported.

One approach that has perhaps more potential is where researchers actually design a survey specifically to make cross-cultural comparisons. Hence the questions and methods are standardised, even if there might still be some cultural differences in interpretation of what questions mean. One example was a comparative study of New York and Tokyo housewives in 1978 and then again in 1988. These revealed some interesting and dramatic differences, with the Japanese housewives making 6 and 6.9 calls per week respectively for those dates while US figures were 16.1 and 22.7 calls respectively (Nojiri, 1970:165). There were also equivalent differences in the average length of calls, and differences in the topics of and conversation and motives for phoning family and friends: the Japanese were inclined to chat about family news, arguably reflecting a stronger family orientation, while the Americans talked about their free time, work and social issues.

8. Evaluations of the Phone

8.1 Attitudes to the phone

Within media studies, one approach to understanding media consumption has looked for 'uses and gratifications' that can be derived from media: for example, why do we watch certain TV programmes or make use of the TV as a childminder. What are the benefits that motivate people to act as they do in relation to this technology? There has been one attempt to apply this type of framework to the phone, which generated a taxonomy that is related to the 'types of calls' (outlined in section 4.1). However, the results are slightly different because the questions involved asking why people 'like' to use the phone. The resulting general categories included such examples as 'convenience', 'overcoming loneliness and isolation', and 'security'. This researcher also asked about negative evaluations, what people 'dislike' about the phone, and how it 'uses them' (Noble 1989). Later Australian research has pointed to the fact that we can have very complex attitudes, with the same individuals responding to the phone in both positive and negative ways (Gillard et al, 1994:3) and the UK qualitative research also follows up this theme of ambivalence towards telephony (Haddon, 1994)

8.2. Problem Calls

Obscene and threatening calls were noted in the discussion of gender (section 5.1), but there are also some US data on calls which are undesired in other ways: such as charitable solicitations and telemarketing (Dordick and LaRose, 1992:10). These researchers also investigate the strategies which household members use to avoid such calls (as do LaRose and Mettler, 1990:14).

8.3. Controlling the Phone

One general theme noted by a number of researchers in this field is the issue of control over the telephone. Some people may particularly like to receive calls. For instance, studies have observed how teenagers' sense of belonging to their peer groups can be enhanced by being phoned, and certainly some of those in the UK qualitative research referred to the greater urgency of the phone when they were younger and how their own children now rush to answer the phone. The UK research also indicated how some of those who were relatively more isolated, such as the elderly living alone or lone parents trapped in the home in the evenings could appreciate being called.

But often incoming messages can be perceived as an intrusion, a disruption to domestic activities and an invasion of privacy. A number of participants both in the UK study and in those of other researchers have voiced the same desire to control their contactability and accessibility, to choose the timing of contact so that they can set the agenda rather than respond to someone else's. German surveys indicate that over 12% of those interviewed felt more or less regularly disturbed by the phone, with some refusing to answer it, or else getting other family members or flatmates to check who was calling (Adler, 1993: 282).

Technologies can assist in controlling the phone, as various writers have observed how answerphones are not used solely for their intended purpose of taking messages when household members are not at home but instead act as a filter or buffer when people are actually in the house. The call receivers can then decide if they want to answer straight away, or if they want to reply later - if at all. (Gumpert 1989:248-49; Adler 1993:282, 294-296; Haddon and Silverstone, 1993:101-2). Other systems such as faxes, E-Mail or the use of answering services can serve a similar purpose of controlling incoming calls.

Surveys of mobile phone use show a related preference for making calls rather than receiving them, with a greater proportion of out-going calls. While there may be some practical reasons for some of this pattern, such as conserving battery power or being in areas of poor reception, various writers have commented on the disruptiveness of receiving calls in meetings or public places and question how much we want to be so accessible to others (e.g. Lange, 1993:204-7).

8.4 Cost Issues

One Australian study discusses the fact that the cost of phone calls can be a significant issue for people (Noble, 1989:300-1) but it is perhaps a little surprising that there has not been more quantitative research exploring to what extent financing telephony is a problem or, indeed, is a factor which helps shape the pattern of phone use (e.g. how do people respond to different tariff structures?).

In the qualitative research in the UK, concern about costs was most acute among those on low incomes, namely the lone parents and some elderly living solely on state benefits. This worry certainly led, where possible, to outgoing calls being steered to times when cheaper tariffs operated. Calls were also rationed, both in terms of the number of calls and their length. Often children's use was rationed, with the instigation of rules about what counted as necessary and unnecessary calls. In such households, children obviously had less access to a

communications resource than many of their peers and in this sense experienced some sense of disadvantage. Despite such measures, the phone bill often remained a source of worry, always threatening to get out of control (Haddon and Silverstone, 1995: 2931; Haddon, 1994).

9. Phone Styles and Rules

a) There has been some research on the rules which people adopt when managing a phone conversation, in part depending on the nature of the phone call and who is calling whom (e.g. Dordick, 1989:234-35). For instance, Adler (1993:282-3) summarises some of the German studies of the rituals by which we start and end telephone calls. This work, and studies of the whole nature of telephone conversations have some potential relevance to phone innovations if we ask about the extent to which such patterns and rules about managing phone conversations are affected by the introduction of different technologies. For example, some people give very short messages on mobile phones because of being aware of the cost. There has also been some speculation about new forms of etiquette emerging related to mobile phone use and the nature of conversations. Might the same be true for videophones? Looking back historically to the early days of the telephone, the operating companies actually found it necessary to suggest ways to behave and to cope when speaking on the phone in order to get over customer 'problems' with managing and accepting this unfamiliar medium. Hence, it is always worth asking whether new telecoms features and innovations require companies to show in more detail examples of how people can use them.

b) There have been several discussions of the paradoxes of the telephonic medium. Sometimes it can enhance formality in communication, providing some desired distancing (Gumpert, 1989: 241). In fact, in the UK qualitative study of lone parents some women mentioned that this was an advantage in handling difficult matters with ex-partners. In other circumstances, the phone can foster particular kinds of intimacy - even at a distance. For instance, we sometimes give more attention to conversations on the phone than in face-to-face contact. Hence, some German studies (Schabedoth, et al., 1989:103; Adler, 1993:293-94) and US studies (Dordick, 1989:233; Dordick and LaRose, 1992:11) have asked what people would and would not say over the phone, and under what circumstances face-to-face or phone contact was preferred (e.g. it was easier to tell a lie when on the phone). It is in relation to these themes of distance plus intimacy that the appeal of chatlines has been discussed (Gumpert, 1989: 242-44).

10. The Symbolism of the Phone

There now exists a substantial literature on 'consumption' that examines how we consume goods in everyday life. These writers look beyond questions of use and functionality to examine desires, sentiments, dreams, fashion, taste and style. In other words, they look at the symbolic qualities of goods, how they are meaningful to us and how we invest them with meaning. In other words, the concern is with their symbolism.

A wide range of goods have been examined by this literature including clothes, foods, leisure activities, furniture and housing, but these writers have not usually applied this approach to technologies, the two exceptions being cars and motorbikes. More recently, it is feminist writers who have drawn attention to the gender symbolism of technologies. In addition, writers on the history of the various technologies, including the phone, have observed how

these technologies can take on a heightened symbolism in the first years after their introduction as people speculate about their significance for everyday life and for the future. It took some years before the basic phone became more 'ordinary' and less visible, but we can still see these processes arising with new telecoms innovations such as the mobile phone, and especially its early associations with 'yuppies'. However, mainstream research on telephony has usually ignored such dimensions and has been concerned more with the traditional utilitarian themes of usage, 'needs' and benefits - even when discussing newer innovations (although France Telecom staff note issues around social status, Perin, 1989:2)

The Brunel and later Sussex University studies tried to apply some of these insights from the consumption literature to information and communication technologies - including telecoms. They pose questions about lifestyle, household and individual values and orientations, the way people organise their lives and hence how information and communication technologies (ICTs) fit in, or are made to fit in, with all of these. On the one hand, ICTs come pre-formed with meanings through such processes as advertising, design and all the media discussions surrounding them, but then households and individuals invest them with their own significance through a process of 'domestication'. This includes the effort involved before acquisition in imagining how they might find a place in the home and a role in people's lives, the negotiations around acquisition and the process afterwards of fitting these ICTs into domestic time and space.

In fact, the latter aspect is one of the few that has been touched upon in quantitative research. For instance, German research notes that Germans are more likely to locate phones in the hall and then the living room (Schabedoth, 1989; Dordick and LaRose, 1992: 52) whereas in the US the kitchen is most preferred (44%) followed again by the living room (Dordick and LaRose, 1992:5). While the data may be useful to have, they are untheorised - there is no attempt, even through quantitative measures, to explore why these cultural differences exist or how location may change over time.

The Brunel and Sussex work also draws attention to location within rooms, charting how phones, and phone-related equipment such as answerphones merge into the whole ensemble of artefacts. This requires considering the aesthetics of actual phone handsets, routines (e.g. in which rooms people spend most of their time), issues of how privacy and family surveillance are handled within households, the importance of displaying technologies as statement of household values and how different people react to the intrusiveness of telephonic communications and use location as a means to control this threat to some extent. Moreover, apart from any wider cultural changes over time, which might include the gradual movement of the phone away from the door - the point of entry into the home - into the inner areas of the home, it might also be worth considering change in location over the life cycle of households as they rearrange their homes according to changing circumstances, or how the availability of new telecoms innovations, including extensions and cordless phones, requires households to rethink where their phones should be based.

11. Regulation, Conflict and Negotiation

It is important to understand how the phone is regulated in order to understand patterns of use. In other words, what are the rules, the understandings about when and how it is appropriate to use the telephone - or telecoms services?

There have been some attempts at quantitatively measuring if and how the phone is regulated in relation to children and teenagers - both in the US and Germany (Dordick and LaRose, 1992:9, 54). Of course, while these may show different systems of rules, they do not in themselves explain the differences.

The whole area of regulation was an important theme of the Brunel and Sussex work - including conflict over regulation and attempts to resist its imposition. This occurred especially in teleworking households, where there were concerns that other family members might be blocking the phone with domestic calls so that work calls could not get through. Or else there were concerns about the negative impression of telework that might be conveyed if, say, children did not answer in the correct way, or made a noise in the background. Here we saw the emergence of rules about when phone calls could be made, about how long they could be, about how the phone should be answered, about when the phone should not be answered by anyone else but the teleworker and about how important it was to be reasonably quiet when calls were coming in or being made. Where households were shared by several people, including other family members, lodgers, au pairs etc. then they all had to arrive at systems to organize how they were going to divide up the bill, how they might monitor phone use to decide who should pay what and even decide when there could be a ban on incoming call so as not to disturb others in the household.

However, regulation does not always run smoothly: while people can arrive at some consensus and stick to rules, or have them imposed, the right to use the phone can also be contested and form the basis for domestic conflict and tensions, raising issues about the freedoms and responsibilities of individuals - e.g. to privacy within the home, as opposed to phone calls always being in public areas and potentially under surveillance. Innovations such as itemised billing become part of the way to monitor the phone, to police it, while various forms of call barring provides another technical means to assert control if compliance with rules is not forthcoming.

12. Qualitative Research

12.1. The Range Available

In the US, there is a study of women and the telephone in a mid-western rural town (Rakow, 1988) and subsequently a smaller study of women and the mobile phone (Rakow and Navaro, 1993). German research has been conducted on the elderly (Kordey, 1993). In Norway, there has been some work on women's experience of Minitel, which applies some of the concepts developed in the UK (Berg, 1994). In Australia, some of the quantitative studies also include more detailed examples and accounts from some of the participants (Moyal, 1987) and more recently, there has been a study which focused on the particular experiences of 10 individual (rather than households) to illustrate how the phone related to a range of lifestyles and orientations (Gillard et al, 1994). This last study highlighted some of the same themes as the UK work: ambivalence towards the phone, even if it is recognised as a necessity; issues around privacy, and hence the intrusiveness of the phone and the problem of being too accessible; and strategies used to control the phone, including developing different rules about contactability for family and friends.

Turning now to the recent work in the UK, the first 3 years of a study of 'information and communication technologies' (ICTs which included the phone, computers, games, TV, radio

and other audio) were conducted at Brunel University in West London. These enquiries developed a theoretical framework for thinking about the dynamics of households and the consumption of ICTs. It also explored methodologies and conducted some very in-depth case studies of 20 nuclear families possessing a number of ICTs. In the second 3-year phase, now conducted at Sussex University, each year was devoted to looking at a strategic group, strategic in that they revealed processes that had wider implications. Themes from each of these studies, especially related to telephony, are now considered.

12.2. UK Research: Teleworkers

In the first year of the Sussex research, the main focus was on people working a majority of the time from home using computers and phones in the course of that work (Haddon and Silverstone, 1992, 1993a, 1993b). In this first case, studying teleworkers provided a way to examine the home-work relationship more generally, but in this instance in a particularly dramatic form. Hence, some of the insights from this study apply to certain non-teleworkers as well: e.g. those who bring some work home after leaving offices, those who allow themselves to be contactable at home and those who work non-standard shifts and so become out of synchronisation with family and social life.

It is worth noting that although some forms of telework have been made more viable by ICTs, including telecoms, and indeed some telework could not have been accomplished without these technologies, a majority of teleworkers find that improvements in ICTs merely facilitate the work - they could have managed before with the typewriter and basic phone. In other words, socio-economic factors are more significant than technology in shaping self-employed, employer and employee decisions concerning the option of teleworking (Haddon and Silverstone, 1993b:4-5).

Telework shifts the boundary of home and work and hence the organisation of domestic space and time. The different temporal and spatial patterns that emerge, and the efforts to maintain the boundaries between home and work, have a bearing upon the time when ICTs are used, the access of others in the household to ICTs and how they can be displayed. Some telecoms ICTs and services, such as answerphones, fax, E-Mail and answering services, can themselves play a significant role in helping to maintain these boundaries. The introduction of telework often involving enlisting the support of others inside and outside the home, which includes technical support (getting a partner or friend to set up equipment or fix it in the event of a problem) and the enrolment of others in the actual production process using ICTs (more usually, using word-processors to help produce text).

The acquisition of new ICTs for work can lead to the multiplication of technologies, with several computers, phone handsets and phone lines in the home. This creates new patterns of regulation, as does the use of old technologies for new purposes: as when the old domestic phone line now becomes a work line as well. This has a bearing on who can use it, when and how. The process of acquisition often involves the negotiation of 'need' and household priorities. In practice, teleworkers often cannot predict exactly how 'useful' a new item or service will be when, in some cases, they are drawing on family income which could be used to purchase other things. At times telework can be the catalyst for the purchase of ICTs, such as mobile phones, which are already desired but until now could not be justified. Telework can provide the basis for new competencies using all ICTs, lead to improved self-esteem, and the creation of expertise. Now that there are far more telecoms options available beyond the

basic phone, the 'telecoms expert', the equivalent of the computer expert, is starting to emerge. Often ICTs that were initially introduced or justified for work find other domestic uses and are used by people other than just the teleworker. ICTs and ICT-skills could also act as a community resource - as when friends ask to use fax machine or photocopier, or ask for advice.

12.3. UK Research: Lone Parents

The second year case study (Haddon and Silverstone, 1995) was primarily a means to examine household structure, given that most research and the stereotypes informing product development often assume nuclear family structures. Nuclear families actually constitute a minority of all households, with lone parent households now constituting another substantial minority. In addition, this case provided a study of poverty and of the strategies to overcome problems and hardship. In those cases involving the break up of relationships, the research also acted as a study of trauma, of upheaval and the dramatic dissolution and reformation of households and household life - in contrast to research looking at more stable arrangements and slow incremental change over time.

Not all lone parents are poor. Those who manage to work or continue working in full time employment can have reasonable incomes, and given the pressures of coping with lone parenthood may indeed sometimes be good candidates for acquiring ICTs, especially telecoms facilities, to help them to cope. However, for the majority living on state benefits many telecoms innovations are beyond their horizons since other desires have a much higher priority. The basic phone usually remains the key technology, both as a social lifeline and as a tool for managing their life - but even here, concerns about phone costs can lead to rationing usage.

On the social side, the phone can be vital for women trapped in the home at night because there is no other adult who can be to look after children - even to be around when the children have gone to bed. At times of crisis such as the break up of relationships the phone link to social networks becomes crucial, especially with the sometimes intense experience of loneliness and isolation. As with the unemployed more generally, the phone becomes vital for staying in those social networks when there is no alternative form of contact though the workplace.

But phones are also important for organising - for seeking various forms of state support, finding out about childcare options, looking for jobs, arranging for others to take children to school or pick them up and, where appropriate, for sorting out the logistics of shifting children between ex-partners.

12.4. UK Research: Young Elderly

The third year Sussex study of the young elderly (60-75 and retired) had two main goals: to study the effect of stage in the life course, and to study cohort effects. The latter refers to the fact that people are born, grow up and live their earlier adult lives at particular historical moments, with particular social and economic conditions and different technologies available. So apart from ageing and the social options that accompany retirement there is a question of how the particular earlier experiences of the young elderly shape their values and

orientation now. This experience is somewhat different from the young elderly of a decade ago and will be different from the young elderly in the years after 2000. The young elderly were chosen also because studies of the elderly have often focused on the older elderly, their poverty, their greater physical decline and need for welfare services - including roles for telecoms. The circumstances of the young elderly are different as they are increasingly better off through occupational pensions, suffer more minimally from health problems and often lead very active lives. Retirement, or the retirement of a partner, is still relatively recent, so they are often going through a transition that involves some restructuring of their lives.

This study is in the process of being written up at this moment in time. But it is clear that earlier experiences have an impact on interest in ICTs. For many in this group, the computer came into work too late in their lives - they dealt with it minimally, tried to avoid it in their last years of work or even decided to take early retirement rather than cope with the computerised office. For those who did deal with computers, PCs were simply work tools, and never integrated into domestic life, in contrast to the case of many teleworkers. While the basic phone itself was very significant, many telecom innovations were beyond their conceptual horizons - they had been without such facilities for all their life so far and managed, and so did not want to try experimenting with them now. The exceptions were straightforward extensions of the phone, such as having extra handsets and cordless phones. With some economic constraints and always looking for value for money - common values established by growing up in periods of austerity - the young elderly were sometimes receptive to special offers as regards telephone tariffs.'

As with lone parents, the phone is a usually a vital possession. Some are just starting to develop mobility problems and decline in physical strength can make them feel more vulnerable and less secure - e.g. when going out at night. (NB In a UK context there may be more crime than in Scandinavia, but there is certainly a greater perception of insecurity). Both of the factors can lead a proportion of even the young elderly to adopt a more home-centred existence where the phone becomes more significant for maintaining connections with family and social networks. However, others adopt a very active life to replace work - studying at such institutions as the University of the Third Age, taking up voluntary work, joining clubs, and sitting on various committees. Yet others turn more to family, becoming much more involved with supporting their own adult children though looking after grandchildren or else taking on a greater caring role for their own parents who are living longer nowadays. For those with either of these last two orientations the phone becomes very significant for, literally, managing all these commitments and many actually noted their dependency upon it. Finally, for those whose partners have died, loneliness and isolation can make the phone very significant for maintaining some sort of social contact, especially with geographically dispersed adult children.

12.5. UK Research: Wider Implications

Although the three studies outlined above have generated, or will generate, reports in their own right, material and examples from all three have been used in publications exploring specific themes. There had been one paper exploring issues around the phone (Haddon, 1993), one exploring issues of how access to ICTs relate to debates about new 'haves' and 'have-nots' (Silverstone, 1994) and one following the longer term careers of ICTs after they have been acquired (Haddon, 1994). Another paper is planned which will explore further

the home-work relationship, household structures and indeed the boundaries of household and others aspects of life cycle and cohorts more generally. A further paper will examine the relationship between quantitative and qualitative data. For example, how can themes thrown up in qualitative research be examined quantitatively, and what cannot, how can the themes outlined above be explored through tools such as questionnaires; when it is it more appropriate to do quantitative or qualitative research?

Footnotes

(1) The NSI market segments, paraphrased at times for clarity are: families with pre-teen children, families with teenage children, young singles, young couples, mature singles, middle age couples with no children under 19 at home ('empty nesters'), the young elderly and the older elderly.

(2) In the German study, the categories of motives for calling included: special occasion, leisure activities, school/education, health problems, invitation/visit, social activities, professional matters, personal matters, organisation of everyday life, business and 'no particular motive'. These researchers had also offered participants a list of the most important activities when phoning, including categories such as: making/cancelling appointments, discussing problems, organising gathering/providing information, orders/reservations, assigning/accepting tasks, congratulating, exchanging news, passing the time. Finally, the researchers provided details concerning the frequency and duration of such calls.

3) In the French study, the researchers arrived first at a schema involving 16 forms of phone activity (e.g. exchanging news) and 11 topics (e.g. calls about problems, free time). From their actual data they then collapsed their categories further (e.g. they found that the main activities on the phone include organising, informing and discussing, and main topics included private life, work life and social life). The researchers then manipulated and collapsed that data still further to arrive at a single 4-part continuum discussed in section 4.1.1.

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