Empirical studies using the domestication framework

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While the broad theoretical outline of the concept of domestication has been widely cited (especially Silverstone et al, 1992) the subsequent British empirical studies are perhaps less well-known. In fact, there was a research element in that early work at Brunel University and, indeed, one case study was reported in depth in the first main publication introducing the concept (Hirsch, 1992). However, the focus of this chapter is on the subsequent projects that were chiefly carried out at Sussex University under the PICT programme as well as some commercially sponsored studies.

The first part of the chapter introduces the history of these British domestication projects conducted during the 1990s. The discussion of the methodologies used in the three PICT studies provides a background for the findings reported in the second half of the chapter. Then three commercial studies are outlined, with a brief note on the how they contributed to the on-going development and application of the domestication framework. Finally, there are some indications of how all these studies contributed to thinking in the area of ICT policies, as well as observations about how the domestication framework might be extended to social networks

The second part the chapter deals with how the domestication framework was itself developed by examining some key themes arising principally from the PICT studies. The first of these indicates how the domestication analysis was extended from its

original focus on nuclear families to reconsider both the boundaries of households and the influence of different household composition on ICT use. The second development involved looking in more depth at forces at work beyond the home. This reflected upon the consequences for ICT use of household members' involvements with the outside world, especially through their paid work but also through other voluntary commitments. The third section considers how the domestication approach can be combined with complementary forms of analysis. This is done chiefly through examining how the shared background of a generation or cohort of people can have a bearing upon their relationships to ICTs. Finally, we move beyond the early acquisition of ICTs discussed in first formulations of the domestication concept to consider factors shaping the longer-term careers of ICTs in the home.

The 1990s Domestication Studies

The PICT studies, each of which lasted a year, examined how ICTs were experienced by teleworkers, by lone parents and by the young elderly. These target groups were chosen for strategic purposes in order to develop the original domestication framework further, as will be outlined below. In each of the studies we conducted in-depth interviews in 20 households. Where there were two partners we attempted to see them both separately and together, on the first occasion to appreciate what they had to say independently and on the second to see their interaction. In addition, each adult interviewee wrote out a week's time use diary and observations about the home were noted. This included photographing various ICTs and the context in which they were located as well as taking pictures to capture the appearance of these homes and their locale. However, the more detailed ethnographic element of the earliest

domestication studies was not repeated. While the first three-year study at Brunel had explored various methodologies, the Sussex research was more focused in this respect, especially due to time considerations. Hence, the central research tool was in-depth qualitative interviews around a set of themes.

In each household, the first interview covered the adult members' biographies, the history of the household and its current daily routines, paid work, domestic labour and leisure patterns, finances and social contact with kinfolk, friends and local community. We tried to establish what issues and tensions existed, what aspirations people had and what meaning they made of the events in their life. In the second interview we explored various dimensions of their ICT consumption. This covered the history of their ICTs and their earlier experiences of them as well as the current use and roles of those ICTs in their life. But the interview also examined pleasures derived from using ICTs, their aspirations as to future acquisitions, the anxieties or conflicts that these technologies created and how ICT use was regulated and controlled, by whom and with what degrees of success.

The first PICT study, conducted in 1992-3, was of teleworkers (Haddon and Silverstone, 1993, 1994a). This group were chosen in order to explore the relationship between home and paid work under conditions when the boundaries between them were being challenged in a particularly dramatic form by the homeworking using ICTs. 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 so that

their free time is out of synchronisation with other household members and social networks.

The second year of the programme, 1993-4, dealt with lone parents (Haddon and Silverstone, 1995). These were chosen in order to explore a household structure that was different from the nuclear families of the earlier Brunel work. But this study also had a number of other dimensions. In practice the lone parent households were mostly female-headed, and so they provided an opportunity to look at the dynamics involved around ICTs when no adult males were present. A large number of our interviewees were living on state support, or earned a limited amount. Hence this was also in part a study of the consequences 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.

The final year, 1994-5, was spent examining the young elderly (aged 60-75) (Haddon and Silverstone, 1996). This group was chosen in order to reflect upon differences in the experience of ICTs arising at a stage in the life course when the children had left home and paid employment had ended. But the young elderly were also useful for considering cohort effects - i.e. 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 technologies available.

In addition to the PICT studies, there was one EC funded study of a particular and newly released technology, CD-*i,* (Silverstone and Haddon, 1993). Some of this

material fed into a book chapter aimed at combining an understanding of how users were conceived in the production process with the domestication approach to analysing ICT consumption (Silverstone and Haddon, 1996).

The first commercially sponsored study (Silverstone and Haddon, 1996) was for the cable company Telewest. Its staff had shown an interest in how the domestication approach might help them to understand the low take up of their cable service by what is in the UK social class AB: managers and professionals[1]. This 1995-6 study was able to cast some light on the values of this group, specifically how they evaluated TV and associated cable with more TV (which was understandable given cable's marketing strategy at the time). In addition, the study drew upon the interest of domestication analysis in people's time schedules and showed that, after prioritising the news, the remaining time slots that many of these managers and professionals had for TV watching in the weekdays mitigated against their ability to watch films, one of key selling points of cable[2].

The second commercial project arose when the firm NCR was interested in the future of electronic commerce. While this topic provided one important focus, the company was also interested in the Internet more generally, as this was the early period of its growth as a mass market phenomenon. The study focused on a middle-class sample since this group provided the main adopters at the time of the study in 1998. It explored differences in early experiences of the Net that related to an emerging literature of Internet 'apprentiships' (Jouet, 2000; Lelong and Thomas, 2001; Horrigan and Rainie, 2002; Haddon, 2004). But as in the case of the cable study, it examined people's time structures, their time commitments and hence 'free' time

slots. It became clear how these provided important constraints on usage that challenged contemporary speculations within the industry about the prospects for increasing on-line time substantially.

The other novel dimension of this particular NCR study was that it entailed a five-European country comparison involving Germany, Italy, the Netherlands, Norway and the UK. Perhaps the most notable result was the similarities between countries in terms of general social processes. This finding was arguably not as exciting as exploring national differences, although there were some of these. However, conducting this study provided a heightened appreciation of the particular challenges of cross-cultural comparisons of qualitative studies (see especially Livingstone, 2003 on this point). For example, the participants agreed to operate within the domestication framework, covering the same areas in interviews and addressing an agreed set of questions when producing a country report. Even then, there was often some uncertainty as to whether different observations from the various national teams reflected actual national differences or whether they reflected the particular insights and background sensitivities that the researchers brought to the analysis.

A third commercially sponsored study was conducted for Telecom Italia. This involved a five-country survey conducted in France, Germany, Italy, Spain and the UK (Fortunati, 1998). The earlier PICT studies had examined the ways in which people sometimes developed strategies to control communications. They usually did this either because of the costs of outgoing calls or the disruptiveness of incoming ones, especially if the latter occurred at inconvenient certain times (Haddon, 1994). Together with an analysis of the strategies people used to keep their communications

private, this focus on control strategies formed one of the strands explored in the survey. A critical perspective as regards what can be and is being measured in surveys was reflected in the questions asked and the statistical tests that were chosen. On the one hand, the survey material contrasted with the bulk of domestication studies that have been associated with qualitative methodologies. On the other, the research explored avenues that, while not being unique, were also not so common in more traditional surveys of ICTs - touching, for example, upon issues of domestic politics.

This 1996 survey provided an opportunity to examine the generalisability of these experiences of communication, to see to what extent controlling communication was an issue for people and the degree to which any strategies aimed at dealing with perceived problems were used[3]. For example, it was striking how much the costs of telecoms was an issue within the European countries studied, across the social spectrum, and how much this affected interactions within households – e.g. in terms of complaints about other household members use of the phone and attempts to limit this use[4].

In addition to the commercial studies, the domestication framework was used to explore policy issues[5]. In particular, several publications addressed the issue of social exclusion, looking at how access to and use of ICTs related to debates about new 'haves' and 'have-nots' (Silverstone, 1994; Haddon, 2000). Through considering some of the studies outlined above, especially the PICT ones, it was possible to explore what the presence and absence of ICTs meant to people in everyday life, the possibilities they opened up or closed down. Although the earliest British domestication analysis looked in detail at the processes by which ICTs were fitted

into our lives, it never insisted that they had to be. These PICT studies revealed some of the ambiguities felt about ICTs, even well established ones like the TV and phone, and showed why people might not always choose to embrace new technologies.

Finally, more recent work has explored in principle how the domestication framework could provide insight into the experience of technologies such as the mobile phone. It had always been clear that while the British domestication framework provided insights it also had its limitations through an emphasis on interactions within the household. For example, some of the processes shaping the popularity of technologies occurred outside the home (Haddon, 1992). Indeed, some Norwegian work using the domestication approach has looked to other sites outside the home - e.g. places where computer hackers meet and their individual and collective domestication strategies (Håpnes , 1996). The case of portable ICTs, such as the mobile phone, also require us to think how the domestication framework could be expanded to consider how interactions with wider social networks can have a bearing upon the experience of these technologies (Haddon, 2003; 2004).

Household Structure and Dynamics

The PICT studies in particular enabled more reflection upon the effects of household composition on ICT use. This was achieved not only by looking at target groups that were alternatives to the nuclear families: the lone parents and young elderly. Across the studies we considered ways in which household boundaries could be more porous than had been depicted in the early Brunel studies. For example, this occurred when children from first marriages ‘flowed’ in and out of a household depending on which

parents they were staying with at any one time. Another example would be when adults, and sometimes their children, moved back to their own parent's home when their partnerships split up.

Because the households were asked about their earlier experiences, including earlier experiences of ICTs, it was also possible to appreciate the consequences of the diverse living arrangements they had lived though in the past. This included the degree of communal living experienced by students, by other young adults, as well as by some of our lone parents. Then there were the households shared by just two adults whose relationship could consist of various degrees of closeness: where they might be partners, gay or heterosexual, friends or just otherwise sharing for cost reasons or to provide company. Finally, there were the arrangements whereby families or couples of whatever age define a household primarily as their family, but then have extra people staying with them, be they friends, other relatives, au pairs, longer term lodgers or bed and breakfast guests.

The point is that we might expect a different set of dynamics in all these types of households, than we would in the case of the parent-young children/teenager relationships of nuclear families. Presumably we would also have to consider potentially different gender relations. So what are some of the implications for the experience of ICTs?

To the extent that technological resources are shared between a number of people, there can be more complex, collective decisions and negotiations about access and use. Sometimes this can extend to the acquisition of ICTs since these adults can pool

group resources to buy new ICTs that might be neither affordable nor justifiable for any individual. For instance, when we applied the domestication perspective to the study of CD-*i*, the earning power and limited demands on the income of one gay male couple was such that they could afford an extremely rich and up-market technological environment. To the extent that individuals in shared households lead separate lives, they sometimes duplicate ICTs like computers or audio-equipment. Alternatively, such households can provide the chance for some members to experience the technologies of others prior to acquiring their own set-ups. Finally, particular issues can arise around those ICTs financed on a pay-per-use basis. For instance, some of those lone parents and teleworkers who had lived in shared households recalled the extra interest they had had at that time in monitoring phone usage, as well as devising systems for financing it. Indeed, some had implemented various systems for blocking outgoing calls. Clearly there can be some concern in such shared households with the surveillance and control of technologies.

If we turn now to lone parent households, although not all of these had a low income, many, usually female, lived on social security payments and/or part-time work. There were positive dimensions to this experience, with many lone parents referring to the greater degree of control over their lives. However, the absence of a second adult could create particular constraints, demands and household dynamics. For example, many lone parents felt trapped in home in the evenings because there was no-one else to mind the child. Organising the logistics of child management, such as getting someone to pick a child up from school, could be more complicated for just one parent. And older children could sometimes achieve a stronger negotiating role as regards household rules when only one parent was present in the home.

As regards the consequences for their experience of technologies, limited income often meant that anything beyond very basic ICTs such as the phone or TV was beyond the horizons of many lone parents. The poorer ones also tended to be more conscious of costs such as phone bills, sometimes even rationing their calls and those of their children. Such constraints, and the lack of options to even investigate whether new ICTs and services could play a part in everyday life, can be considered to be one more dimension of deprivation. It shows a lack of ability to have access to the same resources as peers and hence participate fully in the social world. The dynamics of how ICTs were acquired often reflected limited economic resources: for instance, phone handsets, old TVs and VCRs were more likely to be gifts and/or second hand. Hence, all these experiences were discussed in later writings questions of social exclusion, as noted earlier sense. Apart from the effects of low income, the phone was often more of a social lifeline for those trapped in the home, and certainly could take on substantial significance as a tool for organising and coping with daily life. And, in effect, stronger voting rights for children meant they sometimes had a large say in how ICTs were consumed.

We saw at the start of this section that household composition could also be somewhat fluid. This could all have implications for ICTs. For example, travelling between homes meant that equipment was sometimes duplicated in different households - e.g. having a video console in both. Or else more portable ICTs such as Walkman's were carried from one household to another. Meanwhile, children, or indeed adults, spending time in two different households could experience different rules and regulations, different regimes, relating to ICTs. For example:

Joy: *'It's the violence that I don't like. Mark loves* Terminator 2 *and all those sort of films, which is what he watches. His dad bought him that video and he sees films at his dad's that I would never allow him to watch. We have discussed it but that's just one of those things ... (my ex-husband) makes decisions what they watch when he's there and he lets them watch horror films and* Terminator *and other things I don't know about.'*

From her perspective, Joy had lost some influence over this part of her children's lives through not being present when they were at they father's place. Of course, from the children's perspectives, the ability to operate in two different households might have actually given them more freedom. The same applied in Paul's case:

Paul: 'Their mother has never allowed them to have it because... I mean my youngest boy, his favourite author is Stephen King. He's into horror and the most horrific video that he could possibly get his little hands on, that's what he'll go for. Mind you they go round their friends' houses and they've all got (these) bleeding videos. You name it, they've seen it.'

Lastly, part-time household members can have access to different equipment in different households:

Linda: *' I believe my husband's got satellite. They've been watching* The Simpsons *round there and they're quite pipped that they can't watch* The Simpsons *here.'*

Linda's children had clearly expressed some dissatisfaction that she did not have satellite when their father did - i.e. she was seen as technologically deprived given their other reference point.

In sum, household composition can be complex, and indeed it sometimes forces us to think about what counts as the boundary of a household and how fluid this is. Compared to other household structures, nuclear families, in fact, constitute a minority of households at any one time. Moreover, their members often have a far wider experience of different household forms. For instance, a third of all children born in the UK are part of a lone parent household at some stage (Bradshaw and Millar, 1991). The very transition between household forms can be traumatic or at least require some re-adjustment in life, which can itself give rise to new demands on ICTs. For example, for lone parents the phone often took on a very important role as a lifeline to contact supportive communities in the period immediately after the dissolution of previous relationship and the resulting upheaval. Therefore, change in household composition is one of the factors changing our experience of ICTs, one of the factors that influence the longer-term careers of ICTs that is the subject of a later section of this chapter.

The Relationship between Home and the Outside World

People's experience of ICTs can be influenced by their commitments to and roles in social networks outside the home. In principle that had always been acknowledged in the formulation of the concept of domestication. But in the earlier British work much more attention was given to the interaction between household members relating to

ICTs and how people presented themselves to the outside world, as shown in the notion of 'conversion' (Silverstone et al, 1992). The PICT studies provided a chance to explore the relationship with the outside world in more depth, as later researchers using the domestication were also to do (e.g. Lally, 2002, looking at social networks and computer use in Australia). While the choice the telework was explicitly made to explore the influence of paid work, all the studies enabled us to reflect upon relationships with the outside world. The three examples discussed paid work, unpaid-work and links to the extended family.

Commitment to paid employment outside the home influenced the amount of time that was available to spend in the home and hence the time available to use PCs, to watch TV or otherwise participate in other ICT-based leisure. In an era before the mass market for mobile phones, it also influenced the time when people were contactable by phone or free to contact others. Moves towards more flexible working hours and to shift work in organisations operating 24-hours a day had led to more varied times to consume ICTs, although time-shifting technologies such as the VCR and answering machines had enabled people to cope better with being out of synchronisation with more mainstream leisure times.

Apart from structuring time, work reached into the home in various ways, certainly as telework but also as overspill work (or in terms of second jobs) where people brought home some work or else initiated or received work-related communications at home. Our own research illustrated how such cases often led to ICTs coming into the home to support work, either in the form of bringing the laptop home or else re-duplicating in the home work facilities such as the PC. In these studies from the early-1990s,

some mobile workers had their next day's work faxed to them at home or else it was relayed to them as a phone message. Nowadays we might anticipate that the email would take on this role. Even in the early-1990s that other mobile element of work, work-related commuting, has also led some people to utilise portable ICTs in order to make more productive use of travelling time.

Portable or home-based ICTs acquired for work were subsequently often used for non-work purposes. The PICT research indicated how teleworkers who would never have acquired a variety of equipment for purely domestic or personal reasons, including PCs, could now justify this because of work and then discover non-work applications (e.g. printing out shopping lists, using the home fax for trade union matters). Indeed, the equipment was sometimes free in that it was funded or loaned by an employer or client. Once in the home, not only teleworkers but also other family members could gain familiarity with the technology, experiment and develop their competences and awareness of its possibilities. The home-based work fax machine was sometimes used to contact relatives, the work photocopier was used for school projects.

But paid work entering the home not only brought with it new ICTs: it could change the experience of existing ones. The best example from our research concerned the phone. Where a second work line was not justifiable, as in the case of some clerical self-employed teleworkers, the domestic phone took on an additional role as a work tool. As a result rules concerning its use often had to be re-negotiated. Household members, including children, had to learn how to answer appropriately, or when not to answer. Issues arose over other household members blocking the phone line at

certain times with their social calls if this might prevent work calls from arriving. And the whole sound regime of the home had to be reviewed. Hence we have examples of teleworkers deciding where the phone was to be re-located and controlling domestic background noise in an attempt to create a good impression of their working environment when dealing with calls from prospective clients and employers. Related issues emerged over access to PCs where telework now competed with computer games, school homework or other applications.

Unpaid work can, of course include, domestic labour, but the focus here is specifically on voluntary commitments outside of home. This can include 'voluntary work' to help others, taking part in committees, running sports clubs, and participating in interest groups, be they hobby-orientated or concerned with wider social issues. Across the PICT studies we found a considerable involvement in the wider community, with greater and lesser degrees of formality. A teleworker might head the school Board of Governors, a lone parent might organise activities for Gingerbread (the organisation of and for lone parents) or a retired person might captain the local bowls team or run a church group. In fact, many of the young elderly were especially active as they sought to replace paid work with a constructive and social involvement that could structure day-to-day life, keep them mentally alert and add purpose to life.

These involvements often generated organising work, administration and other forms of production. For example, teleworker Simon described how he used his equipment:

Simon: *'I did some tickets for a hockey club. I've organised the last two or three karoake/disco-ey-type things, and I just knock the tickets up upstairs and print them*

off. When Eliza was born, I scanned a picture of her face in and blew it up and that was the, you know, 'she's arrived', you know.'

LH: *'But do you find because you've got this equipment here, other people come up to you and say, "well, could you do this or could you do that on your....?"'*

Simon: '*No, nobody's actually asked me. Actually, at church on Sunday, I suggested or offered to do the weekly newsheets which has gone by the board because the guy who used to do it is no longer doing it. It doesn't look like a big job. They tend to be sort of hymns and songs which I could put into the computer quite easily. And then just, I want number 1, number 47, number 36, just pop them all together and shove them on the page and print them off.'*

We have other examples of computers being used to word-process school reports, up-date records of hobby groups (e.g. what records have been listened to in music appreciation societies) and handle official correspondence on behalf of clubs or maintain treasurer's accounts. Equipment such as photocopiers has been used for reproducing the music scores for bands. Meanwhile the telephone was the medium for organising outings and other events, arranging speakers and players or calling meetings. Other telecoms equipment such as answering machines and even mobile phones could find similar roles. Less formally, others within social networks made use of our participants' ICTs as a resource, asking if it was possible to use the fax or other facility. Here we see the modern day technological equivalent of asking to borrow a cup of sugar from a neighbour.

Lastly we have the case of support for and from extended family, which was again most acutely illustrated in the study of the young elderly. Many of the young elderly had commitments in terms of either caring for their own infirm elderly parents or minding young grandchildren. In managing these tasks, the basic telephone in particular became an important organising tool for arranging visits and travel, as well as for monitoring developments in their relatives' households or providing security in the case of emergencies. The other technology of significance for the extended family was the camcorder, as either the young elderly or their children took on the role of preserving family memories. However, this was not always embraced by other family members. Retired Chris described why he and his wife Hilda had first acquired a camcorder:

Chris: *'Because it was a year when there were three big events in the family. Well, big events... I think the grand-daughter was being born (..), my son was getting married, and Hilda and I were going on a Nile cruise.*'

LH: '*So how often would you use it now?'*

Chris: '*Spasmodically. Mainly holidays, birthdays, Christmas. (...) special events... like I'm putting together some films to... Well, I say films, some of the family for my son out in Oman, for example, just to give Christmas messages and show him what the weather's like, you know; 'This is rain if you'd forgotten.''*

LH: '*So do your various children actually ask you 'Can you come and video this?' ' Chris: 'No, they don't. I poke the camera at them and they say 'Oh no, not again!''*

Hilda*: 'We videoed my son's wedding and he still hasn't seen it. They don't want to see it.'*

Through these various examples we can see the many ways in which what happens outside the home has a bearing upon the organisation of domestic time and space and involves commitments which shape the place and use of ICTs in the home, as well as their acquisition and regulation.

Cohort Analysis: The Influence of Earlier Life Experiences

When applying the domestication framework to the analysis of a particular topic or group this does not necessarily preclude combining it with other forms or levels of analyses if these provide additional insights. For example, each of the PICT studies contextualised their subjects by borrowing from the literature analysing the social construction of childhood (e.g. James and Prout, 1997). The studies reflected upon such things as recent historical developments in work practices, in legislation, in media representations and in financial circumstances. Based on this they could ask what it meant to be a teleworker, a lone parent or young elderly person in 1990s Britain in terms of options, perceptions, expectations, constraints, etc. Another form of contextualisation involved considering the biographies of our subjects, in particular as cohorts of people born at a certain time and sharing some experiences over the course of their lives. This was clearest in the study of the young elderly group, although the form of analysis has a wider applicability. Hence, this study will be discussed as a worked example.

Many of this young elderly cohort were originally from working class backgrounds and had undergone upward social mobility in their own lifetime as middle-class occupations expanded. Hence, it was common for them to have lived as a child in somewhat austere conditions from the pre-war era into the early post-war years. Although they had enjoyed more affluence from the 1950s, in certain respects non-consumerist values were retained. For example, our interviewees would often talk about knowing the value of money. They were careful spenders, interested in getting value for money. The young elderly often resisted rushing to buy the latest version of a commodity and had always been more inclined to replace items when they were sufficiently worn out. Thus, coping with fixed and somewhat reduced income in retirement was not necessarily too much of a hardship for this cohort: they had managed before and just had to be careful. On the other hand, many had enjoyed a lifestyle that had been somewhat different from the previous cohort: with holidays abroad, a car-oriented culture and shopping patterns long geared to supermarkets. Some had experienced the break up of traditional working class communities and many had seen their children and friends move away with the prevalence of generally greater geographical mobility.

The second set of considerations relevant here is at what point in their biographies various technologies became more widely available and how they evolved over the course of this cohort's lives. Radio had become a mass-market product when these interviewees were in their youth. Familiarity with the phone had often come first through work as it became an increasingly common tool in many jobs, especially the expanding white collar ones. Television had made its in-roads into the home in their

early adult life in the 1950s and early 1960s. But on the whole this was still not the computer generation. Many of those now nearer to being 75 years old in the 1990s had not lived through office automation during their working lives. Others had actively tried to avoid computers - being very near retirement age they had not wanted to have to take on new ways of working and learn computing skills at this stage. At the same time, their own children had usually been too old to be swept up by the computer and games boom of the 1980s.

While basic phones, televisions, multiple TVs, TVs with teletext, VCRs and various audio equipment could usually be found in the homes of this cohort, there was a conservatism as regards acquiring newer ICTs, or additional facilities. We saw that they were not impulse buyers and hence acquisitions had to be justified. The young elderly argued in terms of not 'needing' any more equipment, facilities or services rather than not desiring them. They already had all the ICTs they had got used to and would often point out that they had been without various facilities for all their life so far and had managed. While some were more adventurous, most clearly did not want to try too much experimenting at this stage and so they were not interested in some innovations, the computer, as noted above, being a prime example.

In contrast with some of their own parents, most of this cohort of young elderly were at ease with the phone, having gained competence in using it so early in their lives. Most had had their own phone for many years. It had been and was still important for maintaining social contact with dispersed friends and children. And many knew through years of practice how it might potentially be used - for instance, phoning to pay by credit card or phoning ahead to check whether something was in stock at a

distant store to which they had to drive. Phone-related equipment was usually a fairly straightforward extension of the familiar: with modern or additional handsets and some cordless phones. But in the early-1990s answering machines were still rare among this group and mobile phones virtually non-existent. As for the computer, while there were some adopters who had been used to the technology at work, for most it was beyond their horizons not only because it would be difficult to master but because their could not envisage how they would fit into their lives and routines.

Radio listening in the evening had already been largely displaced by TV watching habits developed over a few decades, but the older technology still resisted TV in the morning and during the day. Audio equipment, with the exception of Walkmans, had often been acquired some years previously and for many musical tastes, if not classical, were predominantly from the pre-1960s popular music era. Although most of our interviewees had been willing to take on a VCR, often at the instigation of their own adult children. But at the time of the research satellite and cable were too new, and not justifiable. Apart from some interest in war programmes by those who had taken part in action, the films from their cinema going days often appealed as did travel programmes relating to their own visits abroad. Some soap operas were attractive because they portrayed a sense of community that they had lost. The fairly universal critical standpoint on forms of realism and particularly sex and violence on TV reflected in part their earlier exposure to broadcasting based on very different values in the 1950s.

Overall, in these illustrations we see the various ways in which past shared experiences have helped to shape habits and routines, values and tastes and the very

perception of what that technology can offer. In principle, this form of analysis could be applied to any cohort, as in media commentaries on post-war 'baby-boomers' or more recently in discussions of the specific ICT experiences of children growing up in the 1990s (Haddon, 2004). The purpose of discussing it here has been to show how approaches such as cohort analysis can complement domestication framework, adding extra insights.

The Longer Term Careers of ICTs

Earlier British formulations of the domestication framework paid particular attention to the initial career of ICTs, through the period when they first entered the home and to some extent shortly afterwards. The follow-up PICT studies allowed us to reflect much more on longer-term processes changing the experience of ICTs. One set of factors covered in some depth were the changes in people's circumstances[6] that altered their interest in and use of ICTs. This might include the arrival and growth of children or changes in factors external to the household, such as work (Haddon, 2004). In the PICT studies we focused not only on transitions into telework, lone parenthood and the stage of being young elderly, often involving retirement, but they also observed subsequent and the on-going changes. For example, the new demands on space and evolving timetables of growing children could lead to changes in where telework equipment was located and when it was used. As the financial position of some lone parents improved, this could lead to them using ICTs that had previously not considered. And the communication patterns of the young elderly could alter as grandchildren arrived or their social commitments changed

In addition to these dynamic processes, people's use of ICTs was itself influenced by the on-going change in the technologies and services on offer. Others have subsequently referred to this in terms of the 'shifting environment' of ICTs (Cummings and Kraut, 2002). Of particular interest here is how the entry of new ICTs into the home affected people's relationships to the existing ones there (Haddon and Silverstone, 1994b). Hence the rest of this section considers these particular dynamics, looking across the three PICT studies

If we turn first to the case of hardware, products such as computer peripherals, videos and satellite, and answering machines can be regarded as separate ICTs. However, their entry into the home also affected the existing computer, TV and telephone respectively - i.e. the generic technologies. Obviously, such additions enhanced the functionality of existing ICTs, adding new options. Less obviously, these additions could create new problems or at least give rise to issues that had to be handled in the household. For example, some of our participants remembered new conflicts between parents and children over access to the TV when video games consoles first entered the home. By requiring the TV screen for display, games had competed with broadcast programmes. Others interviewees had been wary of how the additional programme choice offered by the introduction of satellite or cable might make the familiar TV too tempting - they might find themselves watching more TV than thought was appropriate. So both by offering new possibilities and requiring new decisions, what we might call the new TV-video-satellite-game display technology system had gone beyond the boundaries of and was a different entity from the old TV.

The arrival in the home of new technological innovations was not the only factor that we have to bear in mind when thinking about hardware. The multiplication of technologies and the acquisition of second and third phone lines, TVs, computers, etc. can have implications for the experience of ICTs. For example, in some of the teleworking households we examined, up-grading a computer meant that partners of teleworkers and their children could now have easier access to the old PC. While this meant a change in the career of those particular old computers, it also had implications in terms of the computer's general place in the home. It could reduce conflicts and anxieties arising from the fact that different people wanted to use the machine at the same time. There was a parallel in the case of second TVs. The arrival of a new TV not only meant a potentially new role for the old set. It could also change the experience of viewing, reducing communal TV watching - and hence 'family time together' - as on occasion some household members retired to another room to watch the programmes they wanted to see on their own TV.

The last point about hardware is that we should not forget how even more minor innovations can have significant consequences. For example, some of our participants recalled the consequences of being able to introduce phone extensions once British Telecom had changed its rules and when cheaper handsets became more readily available in the 80s. Phone extensions going into private spaces such as bedrooms enabled more privacy for individuals within the home. But that in itself could also lead to conflicts of interest. For instance, extension phones allowed some teenage children to evade more easily the surveillance of their parents. Yet, some parents not only wanted to know who was being phoned, but, being conscious of phone bills, preferred such phoning to take place in a space where it could be monitored. As a

result, in some households, there had been attempts to deny children the use of the extension phone (and cordless phone, which raised similar issues). These examples show how it is important to pay attention to the consequences of more mundane innovations as well as more high-profile technologies and services.

Another instance of change in media is that of the services deliverable via ICTs, most particularly via the telephone. For example, some of our older participants described how they had used the phone more and more to order various goods and services once it was possible to give credit card details over the phone. There had been an increase in access to technical helplines, to social support lines (e.g. the Samaritans), and to chatlines. For some lone parents undergoing the trauma of separation and social isolation, the availability of these support and chatlines had been a social lifeline. In other households, the fear of teenagers running up huge bills on chatlines, or accessing sexlines, had lead to some anxiety and conflicts.

ICT-related innovations such as the radio phone-in, initiated by the broadcasting industry, have created whole new forms of messaging. Certainly some of our participants had rung into such programmes as a means to make their views known as well as to listen to other people ‘like themselves’. Another example of such innovations would be the promotion by TV companies of competitions where the audience was invited to phone in with answers - at premium phone call prices. This development had also required new forms of negotiation within households, with some parents limiting how much their children could take part in these competitions because of implications for the phone bill. Clearly, the increasing availability of all of

these options, making the role of the phone more and more complex, had the potential to cause new types of interaction and regulation within households.

The earliest British formulations of the domestication framework drew attention to the biography of objects over the longer term. But the focus on the moment of consumption and shortly afterwards and the very metaphor of 'taming the wild' could lead to the misleading view that domestication was a one-off set of process leading to an end-state in which the ICT is finally domesticated. This was not an intended implication, as was even clearer in Sørensen's contemporary observation that artefacts become redomesticated or even dis-domesticated as we give them up (1994). The changes outlined in this section as well as the dynamics of households themselves, serve to underline this principle that domestication is actually an on-going process in the sense that we have constantly to reassess our relation to ICTs over time.

Summary

The history of the 1990s British projects shows there are clearly various senses in which the domestication framework has been 'applied'. One is for commercial purposes, to help understand the use, as well as non-use, of ICTs. Its appeal to industry lay in large part in the fact that much traditional market research is very focused on individuals, and indeed often draws upon theoretical frameworks orientated to individuals such as 'uses and gratifications' model of media use, or Maslow's hierarchy of needs from the field of psychology. In the British domestication studies the unit of analysis was the household[7], or when commenting on individuals at least it placed them in a context where one could appreciate the role

of interactions with others as well as the structures, such as time commitments, within which they acted.

The domestication framework has also been 'applied' in the sense of informing policy, the main example of which was in relation to digital divides or social exclusion. But in addition, some of this material published has been policy relevant in other ways. For example, it has been used to comment upon the claims and aspirations associated with the 'information society', be that in terms of questioning broader visions of revolutionary change (Silverstone, 1995) or in reflecting upon the practical experience of one icon of that vision: telework.

The second half of the chapter showed how the follow up PICT studies in particular were designed to fill out the areas that had received less attention in the earliest formulations of the domestication framework. First, the PICT studies highlighted how the composition and dynamics of households were relevant for ICTs. Indeed, they drew attention to ways in which the very boundaries of what counts as a household or a family can be somewhat fluid. Second, the studies looked in far more depth at the implications of relationships with outside world, providing more insight into the context in which households and their members operate.

Third, we saw how in actual studies the domestication framework could usefully be complemented by other forms of analysis. Domestication analysis had always argued how we households or families had previous histories or biographies that had a bearing upon current interactions around ICTs. But a theme from the PICT work was that we could now broaden this appreciation of histories to consider the role of

generational experiences[8]. Finally, the PICT studies underlined how it was possible to understand the experience of ICTs as an on-going and dynamic process, looking beyond the moment of entry into the home in order to see the longer-term careers of these technologies.

Footnotes

1. The sample consisted of 20 households, half with cable, half without, but due to the pressure of time and fewer resources than the PICT studies the research relied on one interview. A similar methodology, for similar reasons, was used for NCR's Internet study.

2. The results are described in more depth in Haddon, 2004.

3. The original Italian chapter on this topic is Haddon, 1998. More of the findings are reported in English in 2004. The full English version of the Italian chapter on this topic can be downloaded from http://members.aol.com/leshaddon/Date.html

4. In the European sample, nearly two-thirds tried to use cheaper tariffs or else tried to limit their own use.

5. Indeed, when the EC Bangemann report on the future of ICTs came out in the late 1990s, some of the material described here informed the report to a High Level Group of Experts brought together to respond to this report and develop policy initiative. That contribution was later published as Haddon and Silverstone, 2000.

6. Such dynamics have also been considered in a variety of French studies, such as Claisse, 2000, looking at evidence on changing gender communications patterns over the life, and Manceron et al (2001), exploring the impact on communication of the arrival of the first child. Both are discussed in more depth in Haddon, 2004.

7. Norwegian studies have discussed and illustrated ways in which the framework could be used to understand domestication at a household level and an individual one (Aune, 1996; Berg, A-J, 1997). This individual level of analysis reflects processes described in some of the consumption literature (e.g. McCracken, 1990), one of the very roots of the domestication framework.

8. The cohort analysis was inspired in large part by the work of Sibylle Meyer and Eva Schulze from BIS in Berlin, with whom we had contact at an earlier stage and who later part participated in the EC sponsored EMTEL network of researchers looking at ICTs in everyday life.

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