# COMPUTERS AND THE FAMILY:

# A STUDY OF TECHNOLOGY IN THE DOMESTIC SPHERE

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# ABSTRACT

This thesis is concerned with understanding computers within the context of the family and family life, and the uses and roles they play within the domestic sphere. The thesis starts with a review of the relevant literature from a variety of social science disciplines including information systems, media studies and sociology. This allows the identification of prominent research themes that are used to build a research framework for empirical work. The study explores the role of home computers, addressing four key elements of family life - paid work, education, leisure and family duties. The research focuses on issues of time, space and budget, with a particular attention to the issues of negotiation and intergenerational or gendered conflict.

The research takes an interpretive approach. The empirical work consists of a series of in-depth interviews with families, exploring their individual and collective attitudes to and experience with computers. Both the data collection and the subsequent analysis make use of ethnographic techniques. The analysis is focused around the existence of various symbolisms attached to the notion of home computing, and investigates the implications of conflicting perspectives on the role and status of the computer within a same family. In the final section, the original framework is revisited to incorporate the findings derived from the empirical work. In this, the revealed processes of domestication are presented, processes that serve to transform an undomestic and alien technological object into one that is incorporated into family life.

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# CHAPTER ONE: COMPUTERS, THE FAMILY AND THE DOMESTIC SPHERE

> Come, no fabulous tales, pray! Talk of realities, of domestic facts, as is usually done.
>
> Aristophanes, *Wasps*

> I do not know how to begin, nor yet how to continue and conclude my tale
>
> Homer, *The Odyssey*

## Section 1: Introduction

We often refer to 'the home computer' as if it was a straightforward concept. This thesis chooses to break down the concept of 'home computer' and to discover what happens to - and, perhaps more importantly, with - computers in the home, or, more particularly, in the domestic sphere. In focusing on the 'with', we bring in the notions of family and family life, and explore them alongside the notions of domestic and domesticity. This translates into a series of questions such as: what does it mean to own a computer and use it in a domestic context, how do different family members relate to and use the computer, how have families learned to interact with this potentially innovative but also perhaps perplexing and intrusive resource?

To start to answer such questions, the thesis draws upon empirical data collected through ethnographic studies of a small number of families in the south of England. This style of research, and the open-ended and discursive approach taken to it, has been chosen so as to enable us to extend our understanding of the reflexive dynamic between humans and computer technology in the context of family life. That is, we are interested in exploring how people live their lives around a new technology, how they make use of its facilities and think about its potential. We are also concerned to understand and explore the processes of decision-making that precede and surround the acquisition of computers and the evolution of the technical apparatus through time. An understanding of the family conflicts and conflict negotiation techniques that accompany such a decision making process is central to this thesis's investigation.

Finally, the focus of the work is set within a notion of family life. This is in contrast to 'the family' as a unitary and 'unpenetrated' concept, or 'the home' as an essentially physical place or 'the household' as a primarily economic concept. Family life, as understood in this work, is lived by individuals through a particular set of close relationships. Our concern with exploring family life leads us to focus on the computer within a particular environment, which we describe as the domestic sphere.

This thesis considers how family life evolves and adapts around home computer technology, and how family life itself affects the technologies that are taken into the domestic sphere. Given the rapid uptake of computers within the home, as noted above, it is surprising that this is still a relatively un-researched topic. Certainly,

there is a stream of literature that considers what we might see as closely associated technologies, such as the telephone, television or the VCR, and this material does form the basis for much of the research. However, this work is based on the premise that the computer is a different type of technology, with its own story to be told.

The work reported here is also based on a firm rejection of simple causal models or 'impact' studies. So, instead of asking 'what do home computers do to the family?', this thesis chooses to ask 'what do families do with home computers?'. Not only are the questions different, but also the essential models of causality. Our emphasis in this work is on 'with', not 'to'. Emphasising 'with' reflects a sense of a complex duality between technology and people, played out within the institution of the family. These ideas will be developed in more detail in Section 2.

The originality of this work also stems from the care taken to enter into families and family life, and to listen and observe what goes on. This is done both through a careful use of the literature and theory of the family, but also through fieldwork based on an ethnographic approach and technique. In carrying out the collection of empirical data, in presenting it, and in undertaking the analysis, careful attention has been paid to retaining a holistic view of the family, treating the individual family as a unit for analysis, but also as one into which we can move. The family is certainly not seen as a homogeneous and universal institution, as any reading of the empirical work in Chapter Five will confirm. These families are different and distinct, with a local rationality that defies over-generalisation. Thus, our research can report some results in terms of the collective response of family members,

while others are essentially individual but none the less a reflection of family membership. In particular the work here focuses on and explores conflict and conflict negotiation as a part of the reality of family life, with or without computers.

This thesis is not only or just about the family, it is also about computers, and more particularly an investigation of computer and associated technologies in a particular social setting. In this way, the work can be seen as fitting into the broader literature of information systems, and in particular the socio-technical and interpretive tradition. Within such an approach, the computer is not considered to be solely a technical artefact but also and more importantly, a social object embedded within a social context. By this we intend that the meaning that we can ascribe to an item of computer technology is not essentially related to its physical characteristics, but one created in the world of its use, or even beyond in the world of its user. For example, to describe a processor as running at 100MHz may have significance if it means that computer games are slow, or if we feel left behind because our brother-in-law has one at 300MHz, but taken alone it means little. Throughout the studies reported here, computers and associated technologies are given such meanings, and such meanings are contested and debated. The analysis presented in the thesis then develops this theme further, and explores the home computer in its symbolic manifestation, as much as in any functional or procedural sense.

We should also note in this introductory section some of the themes that this thesis does not consider or develop to any extent, or for which a deliberate decision has been made to turn away from. First, this work is not particularly interested in seeing people as customers for home computers, in the narrow sense of the term. The size

and extent of the market for such technology is not addressed here. Within the families studied there is of course a concern with how decisions and debate over acquiring home computer technology take place, but for the most part these debates do not result in decisions to purchase. For the purposes of this research data saying "I might buy a modem if…" or "I did not buy a modem because..." is as interesting and significant as the actual purchase of such an item.

Also, this work is not about the 'personal' computer. Indeed, the computers discussed here are anything but personal, they are shared and very often collective and collaborative endeavours. Parents and children use them, brothers-in-law provide software, and hardware is negotiated and recycled around the family. Of course, the basis for most of this technology, certainly at the time of this fieldwork (1996-98), was a model of a personal computer designed for an individual within the world of work. Their capabilities or potential as a collective computer within the domestic sphere was hardly acknowledged. More recently, perhaps, this has been acknowledged, with for example family member 'logons' as part of Windows 95 and later operating systems.

The goal of this research must be understood as to open up a new (or neglected) area of research. While the use of computer-based information and communication technologies has been studied widely within the context of organisations and various human communities (including schools, communities of interest and the workplace, as well as in sector studies and relating to the construction of national policy), the area of this thesis has received relatively less attention until recently. Early research around the home computer (note home not family) has tended to

concentrate on one type of activity or another – teleworking and computer games are two of the most prominent examples – but, for a long time, little research has been dedicated to obtaining a larger picture encompassing all aspects of computer use within the home and within the family. It is this larger picture that this thesis aims to provide.

To an extent, this neglect is understandable. Information systems researchers are only just starting to explore computers as infrastructures or group/community phenomena. Thus in fields such as CSCW, Intranets etc. a new concern has developed, but only recently, concerning the role that these technologies play within a community of interest. In this way, this work does fit within an emerging theme of the mainstream information systems literature. However, there is perhaps another equally significant explanation for the lack of work in this area, which is the inherent complexities and theoretical challenges that are posed by the use of the concept of family. The home, household or house are perhaps safer, more concrete and delineated environments to explore. Furthermore, the traditional view of the institution of the family has gone through considerable re-definition in the recent past and therefore provides a problematic conceptual basis for any study.

## Section 2: The domestic sphere

The section above has attempted to provide a high-level review of the topic of this research and the assumptions and concepts that it is built around. This section takes the argument forward by elaborating on one of the key concepts underpinning the thesis, namely the notion of the domestic. In order to relate family relationships to

the computer, it is first necessary to understand the social and physical environment within which computer-related activities take place, what we name as the domestic sphere. The use of the expression 'domestic sphere' to designate what is most commonly referred to as 'the home' is not accidental. It has been carefully chosen in order to reflect our wish to emphasise the extended social and emotional characteristics of the home environment more than its purely physical and functional features. Our investigation into the uses of the term 'domestic' reveals the existence of a variety of nuances in its interpretation, often reinforced by the context within which the word is used.

This section outlines some of the possible interpretations of the word 'domestic' and concludes with this thesis' own interpretation of the word. We first have to recognise that the word 'domestic' acquires considerable emotional resonance when used in conjunction with other 'emotionally charged' words such as 'domestic ideals', 'domestic values', 'domestic ideology' or even 'domestic violence'. But we can also observe that, when associated with the notion of work, the word domestic often conjures up the image of gender division of labour as well as the notion of patriarchy and oppression of women. However, this thesis argues for the use of the word domestic in a broader sense as is discussed at the end of this section.

***The domestic as ideal***

The concept of 'the domestic' often conveys the ideas of peace, caring and respect, not only as an intrinsic part of family life, but also as a natural and almost

instinctive feature of human life (Hareven 1991; Ryan, 1982). From that perspective, the home is 'naturally' a haven of intimacy and security and an ideal environment for the expression of human qualities and family values

When we talk about animals, the word 'domestic' also evokes notions of loyalty and attachment as well as docility and gentleness. And we can see that, more generally, the verb 'domesticate' is used not only in reference to animals, but also to humans or groups of humans. 'Domesticating' a person often involves the idea of disciplining them, taming them or bringing them closer to a particular idea of civilisation. Whether the word 'domesticating' is used in connection to human, animals or even objects or ideas, it generally means making something fit for life in the home or in a particular type of society. It conveys the feeling that an effort is made to turn something that is part of the world of wilderness into an acceptable member or accessory of life in the home or in society. This effort involves removing the violent or aggressive elements of behaviour and replacing them with a milder and tamer, co-operative attitude or appearance.

Since the word 'domestic' has evolved into evoking feelings such as closeness, warmth and affection, the use of expressions such as 'domestic violence' or 'domestic abuse' typically spawns intense feelings of shock and outrage. When the home, which is presumed a haven of serenity and devotion, turns into a field of hostility, fear and suspicion, there is the feeling that one of the most precious institutions of human civilisation has been somewhat desecrated.

### *The domestic as ideology*

It is interesting to note that the word 'domestic' has not only emotional but also practical connotations, for example when it is used in connection with the idea of 'work'. 'Domestic work' typically refers to 'homemaking' activities, which range from general childcare to 'household maintenance' tasks such as washing and dusting or to more 'productive' tasks such as cooking, and dressmaking. (Chapter Two will discuss in more detail the evolution of the concept of 'homemaking'). Such activities require a fair amount of knowledge and experience and it is often expected that such knowledge will be transmitted primarily via female members of the family, or through dedicated courses such as the late 'domestic studies' programmes targeted at future homemakers. Some of these 'domestic tasks' have been the focus of technological endeavours aimed either at reducing the amount of efforts required to fulfil the task or at increasing its 'efficiency'. These and other issues surrounding 'domestic technologies' will be explored in Chapter Two.

When domesticity is discussed in the literature, it is often in conjunction with its effect on women, either in its oppressive role or in its role as a potential tool toward women's liberation. One of the most striking characteristics of 'domestic work' is that it has long been seen as an essentially feminine task, and for many, as the essence of femininity. In particular, 'managing the domestic' was typically considered women's contribution to the household's economy. Such a responsibility could translate either in performing those tasks themselves or with

other female members of the family or in overseeing the work of the 'domestics' (who were themselves almost exclusively female).

In contemporary literature the oppressive characteristics of 'domestic work' have been outlined both regarding the situation of domestic workers and the position of housewives (Glenn, 1980; Creese, 1988). Industrialisation has been often seen as bringing about major changes in women's economic role and social status in and outside the home (Matthaei, 1982; Kessler-Harris, 1982; Boydston, 1990; Hareven, 1991; Tilly, 1994; Davidoff *et al.*, 1995). Authors such as Easton (1976) and Hareven (1991) have contrasted the prominent economic role of women in pre-industrial times with their retreat towards domesticity and consequent loss of social status during and after the industrial revolution. In their analysis, the move from farming villages to industrialising towns and suburbia had a direct effect on the redistribution of economic roles within the household and the confinement of women within the home, thereby redefining and narrowing both their role within the family and their social status.

It has thus been argued (Davidoff and Hall, 1987; Ellis, 1975; Easton, 1976) that the development of an idealised image of the domestic was closely linked to the spread of industrialisation. Because the public world of business evoked images of immorality and misery, the private world of the home came to be understood as a shelter for security and moral values (Clark, 1976; Zaretsky, 1976). This 'cult of domesticity' has been widely criticised for creating and developing an oppressive set of structures in accordance with patriarchal traditions (Dill, 1988; Jorgensen-Earp, 1990; Rose, 1991). The geographical confinement of women within the home

had often been viewed as symbolic of their social devaluation. Because the home had become a place considered peripheral to the happenings of the world, equating the world of women with the domestic world meant putting them in a subservient position, subordinated to their husband's authority (Zerilli, 1982). The accent has been put on the coercive and constraining features of the 'cult of domesticity' as well as the restriction of opportunities it brings about (Allan, 1985).

However, a number of scholars have criticised the superficiality of some of the critiques of the 'cult of domesticity'. Firstly, the image of a universal 'cult of domesticity' overlooks the existence of differences in ethnic background (Geschwender, 1992a, 1992b), social milieu or geographical circumstances. Secondly, the existence of a 'cult of domesticity' may not have had only negative consequences on the destiny of women. For example, Tuchman (1981) argues that, because it portrays women as moral forces that triumph over poverty and greed, the 'cult of domesticity' may have increased women's confidence in their ability to make changes. This, in turn may have driven them into the public sphere where they initiated social movements such as moral reform and women's rights. Muncy (1991) also describes the US progressive reform movement as having been initiated by women who were working within the boundaries set by the 'cult of domesticity' and Victorian ideals of self-sacrifice.

In this dissertation, we do not start from the premise of the domestic as the ideal environment for family and social interaction. Nor do we endorse the argument that the domestic is necessarily an area of inequality and oppression. The domestic may, of course, present some of the characteristics described by both defendants and

opponents of the 'cult of domesticity' for some members of some families. This does not allow us, however, to draw any generalisation regarding the nature of the domestic among the studied families. What does come out, however, from the interviews carried out for this study, is the variety of attitudes and perceptions towards the domestic, and these shape and are shaped by attitudes and perceptions towards the home computer.

***The domestic as social environment for computer use***

The environment investigated for this thesis is that of the 'domestic sphere'. The picture of a 'sphere' may accentuate some of the emotional connotations of the word 'domestic' by emphasising the ideas of harmony, comfort and security. However, we wish to stress here that this thesis does not endorse the belief that the ideal outcome of family life is the achievement of domestic harmony, or even that there is such a thing as 'domestic harmony'. This research recognises that conflict is an inherent part of domestic life and of family experiences and that an understanding of family use of computers needs to acknowledge the existence of conflicts. At the same time, we do not wish to restrict our study to conflict situations alone. Therefore, our analysis of conflict includes a consideration of the techniques used by families to conduct conflict negotiation and achieve conflict resolution**.**

This thesis proposes a definition of the domestic sphere as a multigenerational world where people seek security and protection, and it looks at this situation from the particular perspective of family computer use. From that perspective, the

computer takes its place in the home not only as a domestic object but it is also a potential threat to the domestic sphere as we know it because of its faculty to open up new windows to the world. We have seen that 'the domestic' is often, to a greater or lesser extent, seen as a sanctuary not only for family life, but for all the values associated with the family. Among other threats caused by the introduction of computers in the home, there is the concern that the computer and specifically, its networking capabilities, will allow the outside world to invade the haven of the home, influencing and ultimately corrupting minds of some or all family members.

The computer in the domestic sphere is an object that takes its place alongside other home components. Its presence in particular parts of the home may be seen as changing, deteriorating or improving the domestic landscape. We will see in this thesis how it carves itself a place within the domestic sphere, how its integration as a domestic object occurs or fails to occur, how families devise stratagems and strategies to tame it and domesticate it. The next section explores how and to what extent the computer in the home or domestic sphere can be referred to as 'home computer'.

## Section 3: The home computer

One could start this section by questioning whether the home computer has ever actually existed. For a long time what was called the home computer was nothing more than a work computer that had been brought into the home. Even today, we can still pinpoint many work-related features in the design of the 'personal computer'.

There is no doubt that the computer was originally designed to service the world of work. The purpose of the first computers was to ease the workload required to carry out complex or multiple mathematical calculations and their use was therefore restricted to the world of work in those particular areas that required large amounts of calculations such as engineering or defence. The first few generations of computerisation were characterised by dramatic improvements in the performance of computers and the falling cost of computer hardware. Those increasing capabilities as well as the decreasing cost of computers led to the multiplication of computer projects in various corporate and government organisations, using chiefly mainframe and mini-computers from an IBM-dominated market. In the 1980s, the user-friendly interfaces of Apple Macintosh computers and of Windows-based environments allowed for a jump-start in the taking off of personal computers, and from there to their presence in the home. The 1980s also saw the emergence of new concerns related to the individual user of computers, including an increased interest in human-computer interaction and in the construction of human mental models and in their relationship with advances in technology.

Much of this home market has long been (and, to a certain extent still is) driven by the entertainment industry. The first uses of computers or computer-related technology in the home were typically entertainment-oriented. Computer games and video games are obvious examples of entertainment-oriented uses of computers. Thus, the Sinclair ZX Spectrum with 24 and 48K of memory and the Commodore 64 gained popularity among the teenage market in the early eighties. Other, later developments of computer technology such as the CD-ROM, the DVD,

or more user-friendly access to the Internet may have been seen as purely leisure-oriented development and still retain some of this aspect. However, computers in the home are used for much more than just games and entertainment. The wide range of applications available on the home computer contributes to giving it a status as a general-purpose machine rather than a purely entertainment-oriented unit. Chapter Five will show how families use the home computer not only for games but also for professional and educational purposes, as well as for 'household management' tasks such as keeping the accounts or planning a budget.

When talking about the 'educational' use or potential of the home computer, we are not only referring to the home computer facilitating the acquisition of knowledge that could be acquired through other means, we are also talking about acquiring and developing what is now commonly referred to as computer literacy. The idea that home computers use is a first step towards a greater familiarisation with a 'technology of the future' has been used as a sales argument from the very early days of home computing (Murdock *et al.*, 1995; Danko and MacLachlan, 1983). Haddon (1988, 1993) describes how the first British home computers, launched in 1980-1981 by Sinclair, were primarily marketed as products that would enable a faster and easier acquisition of computer skills. Having the opportunity to explore the world of computers from the home was presented as a key element towards the development of computer literacy. It might also be argued that the home is a less stressful environment for novices to get acquainted to the computer. Beginners are less likely to feel threatened by the novelty of the technology when exploring it within their own environment than in a workplace where they may feel confronted

by hidden (or open) evaluation by colleagues or managers. Experimenting with computers within the confines of the home allows first-time or inexperienced users to explore the world of information technology in their own time and at their own pace. In exploring the capacities - and limitations - of the computer at home, users can not only acquire basic aptitudes and new skills but also develop a more positive - or at least more informed - attitude towards the world of computers and computing.

The home computer can also enable a closer link between generations, as the case studies (in particular the Sharma family) will illustrate. We will see throughout this thesis that the home computer not only fosters the sharing of knowledge and skills across generations, it also acts as a communication vehicle. Some use it to communicate their enthusiasm whereas others avoid it - deliberately or not - thereby expressing their scepticism or mistrust towards computer technology.

## Section 4: Methodological bases for empirical work

It was felt from the very beginning of this research that an understanding of domestic life could not be achieved with the use of a positivist research approach. This idea can be illustrated by a quote from Moores' study of satellite television.

> [Daily domestic life] does not lend itself to being measured because it exists as a dispersed domain of lived experiences and cultural meanings rather than as an object to be quantified. [...] I will argue that an ethnographic approach provides the most appropriate way forward in these circumstances. Ethnography engages with the complexities of quotidian existence. Like audience measurement, it is a discursive practice, but one destined to deliver data of another kind. The ambition

> of qualitative research on media reception is therefore to produce rich, interpretative accounts […] in specific social contexts. (Moores, 1996, page 6)

The research goal is described in Section 1 as answering the question 'what do families do with home computers?'. In this work we attempt to achieve this by giving a 'voice' to family members living in a home where there is one or more computers. As noted above, this is done through the use of ethnographic techniques and open-ended and discursive interviews with family members. This thesis provides a series of family portraits including transcribed extracts of interviews as well as ethnographic reflections on the information gathered through those interviews. The findings of this thesis are based upon an in-depth study of seven British families owning one or more home computers. The empirical phase of the research included visiting those families at home (with one exception), discussing various topics related (or not) to the computer and observing the interpersonal relationships on display. Both the current use of the home computer and the longitudinal aspects of computer use were taken into account.

Through all this, and in the work reported in Chapter Five, we have tried quite explicitly to allow the individual respondents to provide their own account of life around the computer within the domestic sphere. Since the families are different in many respects (but even if they were not), these accounts are diverse and discursive. In the tradition of ethnography, they are intended to be read as a meaningful text, and not just as 'raw data'. When the researcher steps back into the centre stage, in Chapter Six for example, the commentary provided there is once again not intended to synthesise the findings into a model, theory or framework.

Rather, as Hammersley and Atkinson (1995) put it, “the search for universal laws is downplayed in favour of detailed accounts of the concrete experience of life within a particular culture and of the beliefs and social rules that are used as resources within in” (page 10).

If we are to describe any overall method for reporting the empirical work in this, it would be one that takes as its starting point a family’s day-to-day life (‘la vie quotidienne’), and addresses seriously the diversity and local particularities of individual families and individuals within those families. Once such a starting point has been established, the work then moves on to explore how, to what extent and through what modalities computer use becomes embedded into the activities and routines of families. In studying how computer technology is absorbed into the everyday life of families, we take great care not to isolate units of action from each other and from the context that makes them meaningful.

This thesis is centrally concerned with investigating the nature of the interaction between technology and the family. The main research question addressed in this thesis ‘how do family and technology interrelate?’ can be interpreted in a number of ways. An easy but erroneous interpretation of the question would be to translate it as ‘how does technology affect the dynamics of the family?’ One could also provide a diametrically opposed interpretation by turning the question around, thereby reversing the direction of the cause and effect relationship. The question would then read: ‘how does family use of technology change the way technologies are thought of, designed and marketed?’. This work, however, is not based on one or the other interpretation. It argues that the question to be addressed is too broad

and complex to be limited to a bare cause and effect relationship. Therefore, the thesis chooses to take a step back from this dualism and argues that it is more appropriate to think of family and technology not as separate entities but as mutually shaped and mutually shaping social constructs.

A first step in exploring the nature of the interaction between home computer technologies and families was to study the literature. In doing so, we noticed that a large part of the literature on home technology has been concerned almost exclusively with describing the consequences of technology on the life of individual members of the family. For example, the issue of technology's power of influence on the thoughts and actions of members of the public has been a central point of inquiry for media researchers. Drawing on works of members of the Frankfurt School such as Adorno, Marcuse and Horkheimer, research has seen audiences as a 'mass' that was highly vulnerable to political and ideological manipulations as well as other types of influences. For them, the media (and what Adorno (1972) terms the 'Culture Industry') are at the service of capitalism and therefore promote social uniformity, intellectual mediocrity and cultural decline.

This perspective can be seen as problematic for two reasons. First, it tends to concentrate on individual responses to technology. This may result in some important aspects of information technology in the family being overlooked, in particular those concerned with the behaviour of the family as a group or as a social entity. Second, focusing on the consequences of technology in the family implies a 'one-way relationship' whereby technology affects the family without being affected by it. This approach could be referred to as the 'hypodermic needle'

model. This thesis challenges such a hypodermic model and attempts to evaluate critically alternative models such as the theory of duality (Giddens, 1984; Orlikowski, 1991b).

It might be interesting to recall that opponents to the idea of 'technical determinism' (Williams, 1974; MacKenzie and Wajcman, 1985) have questioned a conception of technology and society as two separate entities. In particular, MacKenzie and Wajcman (1985) have forcefully rejected the then-common view of inventions springing out from the mind of scientists. They preferred to see inventions as the result of a gradual evolution and motivated by a more or less tacit demand or need from the public. Although the issue of technical determinism is not considered in detail, this thesis takes a critical stance towards the broad tradition. This contributes to placing this thesis in direct line with other contemporary information systems research and with the mainstream of ideas developed within the interpretive information systems field. It may even be argued that a critique of technological determinism has been the source of the development of contemporary information systems thinking. The information systems discipline might be seen as having emerged from the very belief that an alternative was needed to the naïve technologically deterministic mode of thinking that was (and, to some extent, still is) predominant among harder science-based disciplines.

## Section 5: An overview of the model developed in this thesis

Throughout a closer investigation of the interviews and a study of the literature, we identified three elements that surround and enable computer activities, namely time, space and budget.

When trying to identify the major themes that might be relevant to a study of computer in the domestic sphere, the notions of time and space spring to mind almost 'naturally' as prime candidates for the central themes of investigation. Indeed, the twin notion of time and space is a recurrent theme not only in the literature around technology and technologies but also in many areas of the social sciences concerned with the workings of human groups and human institutions. The field of anthropology is perhaps the most evident example of such a concern, with issues of time and space pervading much of the anthropology literature, sometimes explicitly (Derne, 1988; Griffin, 1989; Rees, 1994; Rowe and Wolch, 1990; Sinha, 1975), but mostly 'invisibly present' as an integral part of any anthropological investigation. Research in linguistics, for example (Bonvillain, 1981; Friedman, 1975; Huumo, 1999; Hymes, 1975), has shown some interest in understanding how various languages differ in the way they represent and designate the notions of time and space. Some sociological or historical explorations have focused on the temporal and spatial dimensions of traditional and religious practices such as festivals (Ozouf, 1975) or pilgrimages (Keyes, 1975) while others focused more particularly on the use of time and space in organisations and institutions (Giddens, 1981a, 1984, 1987; Urry, 1985, 1991). The notions of time and space have also

been investigated in studies of use (Dennis *et al.*, 1999) and implementation of information systems (Sahay, 1997; Barley, 1988), and, in particular, of geographical information systems (Sahay, 1998).

Alongside the themes of time and space, we bring in the notion of budget or family finances. The rationale behind giving a prominent place to this theme in this thesis is twofold. First, although we do not consider the family as purely or solely an economic unit, it cannot be denied that financial matters play a considerable role in the day-to-day life of families. Secondly, computers are relatively expensive items and the cost associated with acquiring, maintaining and upgrading computer technology typically adds up to form a significant 'expense item' in the finances of the household.

***Time, durée, routine and crises***

Time is a broad and complex concept and we encountered it throughout this study under many different aspects. When thinking about time and family life, one of the first ideas that come to mind is that of family routines. The concept of routine is in itself a complex notion that has been discussed by sociologists and anthropologists including Giddens and Levi-Strauss. The notion of cyclical time has also been used in research works in the field of organisational behaviour (Ancona and Chong, 1996), leisure science (Scott, 1997) and social psychology (Simonton, 1998; MacKerrow, 1999). When referring to the notion of routine, Levi-Strauss talks about 'reversible time'. Whereas the life of an individual is equal to the life of that individual's body and is therefore finite and irreversible, the day-to-day routine of

individuals is, by essence, repetitive and therefore belongs to the sphere of 'reversible time'. The cycle of life, constituted of ever-recurring events, such as days and seasons, therefore transcends the limitations of 'body-time'. This concept of 'time beyond time' is what Giddens (1984) refers to as '*durée*'. We will see throughout the empirical work that the notion of '*durée*' finds much resonance in the study of computers in the domestic sphere. Computer use is largely a routinized activity and the cycles of this routine follow some of the 'natural' (e.g. daily, weekly or seasonal) cycles of family life. Through the enactment of such cycles or routines, families build habits, norms and rules, and individual family members often develop a sense of belonging and identity.

The second temporal notion investigated here is that of 'crises' or 'crisis situations', namely those elements that are not part of the day-to-day routine and contribute in some way to disrupting the routine activities of family life. For example, the breakdown of a piece of equipment may constitute a crisis of uncertain magnitude, requiring the owners (or the users) to take action (repair, replacement, disposal…) and thereby disrupting established routines. Throughout the fieldwork, we will see how the notion of crisis contrasts with that of *durée*. Whereas the routine activities that are built around the computer are repeated and repeatable (which makes them familiar, 'safe' and, one could argue, 'domestic'), crises happen at the most unexpected times and have the most unexpected outcomes. This brings about an element of insecurity and vulnerability that may contribute to making the home computer undomestic in the eyes of some family members.

***Space***

Although we argue that the computer is 'not just an object', or 'more than an object', it cannot be denied that the computer is a physical article with specific physical features, which 'fits' more in certain geographical domains than others. It is clear that a computer, as a physical object, occupies a certain amount of space within the home. In addition, its voluminous aspect, its distinctive shape, colour and appearance participate in making it look intrusive or out of place within the domestic landscape. It may be reminded here that the computer was originally designed for the world of work and remains an article that clashes with most domestic interiors. Computers, just like any other objects, fit in more or less easily in some domestic environments and space often has to be manipulated in order to incorporate a computer.

What we are concerned with in this study is not only the actual 'geographical' place of the computer but also the symbolic meaning of its location. Therefore, in this study, we have taken care to investigate not only the physical integration of the home computer in the domestic space but also its 'mental' or even 'emotional' integration in the family space. A close reading of the fieldwork will show that 'the domestic sphere' is by no means a homogenous domain. Parts of the domestic space are conceived of as 'personal' space or territory, whereas others are more 'shared' or 'public'. An understanding of the 'emotional significance' of a particular place or space within the domestic sphere therefore can help us make sense of the meaning or meanings, status or statuses attributed to the home computer.

***Budget***

The acquisition of a home computer involves a number of expenses for the family. This comprises the initial cost of hardware and software, the cost of maintenance and upgrade, as well as the running cost of computer use (electricity, telephone bills). Associated costs may include the purchase of new furniture, lighting equipment, etc. that one or several family members judge to be necessary for a comfortable use of the home computer.

It might be recalled here that, within the realm of business organisations, computers are often seen as an investment and their initial cost is expected to be recouped in terms of added business or increased productivity. In a family setting, however, computer use is rarely seen solely as a means towards financial gain. Even in those families where the home computer is used for professional purposes, many other elements play an equally important role in the evaluation of the potential benefits of computer use. Such elements comprise (but are by no means limited to) the ability to entertain some or all the members of the family, to increase family members' familiarity with computer, to broaden their intellectual horizons, etc. In that sense, the home computer plays the role of a consumer good that provides personal gratification without necessarily incurring any financial benefit.

## Section 6: A brief outline of the structure of the thesis

This chapter has provided a rapid introduction to the main themes to be developed in this thesis. Chapter Two reviews the literature associated with the two central themes of this thesis, namely 'home technology' and 'the family'. There is no doubt

that the study of information technology in the family is a rather unusual topic for an information systems thesis, at least at this point in time. In fact, the very realisation that this area was under-researched constituted one of the first motivations for choosing this topic. The word 'under-researched' is used here to refer to the notion of quality rather than that of quantity. There has been a considerable amount of academic and non-academic material dealing more or less closely with issues related to information technology in the home. However, a critical examination of the available literature reveals that very few of the lines of enquiry opened up regarding information technology in the home have been followed through in much depth. One of the most prominent weaknesses of the literature appears to be a lack of context or lack of perspective. A number of issues are commonly addressed but they mostly relate to individual use of information technology and typically ignore the broader issues of family relationship and family life. Moreover, although this thesis started as an information systems thesis, the knowledge that other disciplines had tackled similar topics quickly led to the realisation that a purely information systems perspective would be unduly restrictive. Such disciplines include, among others, the fields of sociology, anthropology, social psychology, economics and social policy. All these disciplines are commonly known to belong to the broader category of social science. However, the use of an umbrella term such as 'social science' seems to suggest that the social science disciplines form a coherent whole. This thesis proposes to use the plural form 'social sciences'. The use of the plural form illustrates that the existence of an aggregate is questionable or at least secondary to the notion that those disciplines

display some very distinctive features that accentuate the differences between them. The overall purpose of Chapter Two is to integrate or co-situate ideas originating from those diverse areas of social science research and extract the prominent themes.

Chapter Three is concerned with methodological aspects of the research. It argues that an interpretive approach is the most appropriate answer to the methodological question for this thesis. It tackles a number of questions related to the methodological and philosophical underpinnings of the research before discussing issues of method appropriateness and practicalities. A review of the evolution of methodologies within the realm of information systems research is used as a basis to argue for the need to use an interpretive approach for this research. It is suggested that an ethnographic perspective may be taken in order to translate the philosophical principles of interpretivism into practice. The process of choosing an ethnographic-style method is then discussed and the grounds for the choice of a series of semi-structured interviews with a number of families owning one or more home computers are elucidated.

Chapter Four assembles the themes gathered throughout Chapter Two in order to build a framework for the purpose of collecting information during the empirical phase of the research. The research question 'how is family life constructed around the computer?' needs to be broken down into a set of more specific questions, in order to facilitate the task of collecting data. The first question concerns the type of activities carried out with or around the home computer: 'what do family members do with the home computer?' Answers to this first question may fall into one of the

four categories derived from the literature review in Chapter Two, namely leisure, work, education, and what could be referred to as family duties. The second set of questions refers to the type of family resources used in connection with the computer and has been identified in Chapter Two as consisting of time, space and budget. Some of the questions to be asked here are of a quantitative nature ('how much time does X spend on the computer?' or 'how much has been spent on upgrading the computer?'). However, computer use in the family raises a number of more qualitative questions, many of which are related to the issues of conflict and conflict negotiation within the family. Examples of such questions include indirect or direct references to the existence of tension or conflict related to the procedure of resource allocation: 'did you have to remove anything in order to make room for the computer?', 'what happens when two family members want to use the computer at the same time?'. In order to understand the implications of such conflicts, they need to be examined from various angles. Two of those angles that have been derived from the literature review are the gender and the intergenerational perspectives.

Chapter Five is a description of the findings from the interviews. Among the seven families under investigation, three (the Crabtree, Williams and Sharma families) were involved in a series of in-depth interviews over a period of time, while another four families (the O'Leary, Montenegro, Harrington and Ahmed families) were only interviewed once. Although the latter set of families provided valuable insight into family use of home computers, the former group of families constitutes the core of the research and is therefore described in more detail. A profile of each

family is given in Chapter Five and the full transcripts of each interview are available upon request. Each family is examined along a similar pattern of investigation: a first sub-section provides a brief description of the home and the family setting. A second sub-section is dedicated to the presentation of the main characters in the family and the examination of their use of the computer and attitude towards computer technology. A third sub-section outlines the nature of the interaction between the various family members, focusing in particular on the allocation of family resources, i.e. time, space and money. This chapter therefore provides the foundation for the analysis carried out in Chapter Six.

Chapter Six describes the process of analysis of the findings presented in Chapter Five. The themes emerging from the findings are explored from a more general perspective. In particular, the issue of gender among adults and among children is investigated. Also, inter-generational relationships are evaluated in terms of a series of factors, including concerns and anxieties related to the perceived over-use of computers, the educational role of computers and moral issues. Comparisons between families allow for the emergence of new themes such as the notions of identity, status and symbolism, which in turn allows this research to shed a new light on the notions of 'the domestic', 'the undomestic' and the process of domestication.

Chapter Seven is the concluding chapter of this research. It summarises the main points of the thesis, discusses the strengths and limitations of the research and suggests a number of directions that further research may follow. In particular, the applicability of the findings from this research is considered both for further

research on home computers and for information systems research outside the domestic setting.

# CHAPTER TWO: LITERATURE REVIEW

> From being the basis of the good society, the family, with its narrow privacy and tawdry secrets, is the source of all our discontents
>
> Sir Edmund Leach, *BBC Reith Lectures*, 1967

> Home is the girl's prison and the woman's workhouse
>
> George Bernard Shaw, *Man and Superman*, 1903

## Section 1: Introduction

It is now commonly accepted that most information systems topics are interdisciplinary and draw on theories and frameworks borrowed from other areas of social science (Landry and Banville, 1992; King, 1993; Swanson and Ramiller, 1993; Benbasat and Weber, 1996; Robey, 1996). The research described in this thesis is an illustration of this phenomenon, building on disciplines as diverse as management, industrial relations, sociology, media and communication studies and social psychology. The review of the literature illustrates the interdisciplinary nature of the topic of this thesis and highlights the core ideas available from these areas, taking into account the existence of a considerable diversity in approaches and genres.

As described in Chapter One, home computers (or computers within the home) have remained a relatively unexplored territory within the information systems research tradition. Such research on home computers as there is has tended to

concentrate on one specific type of activity or another – teleworking and computer games are two of the most prominent examples – and on individual users of computers, albeit in the home. A few early articles (early in the history to the PC) explicitly relate family to technology, such as in the works of Hunt (1985), Mitchell (1985) and Tinnell (1985), all of which were published in a special issue of the *Marriage and Family Review*. However, these remain exceptions and, so far, little research has been dedicated to obtaining a larger picture encompassing all aspects of computer use within the home from a family perspective. It is a part of this larger and more integrated picture that this thesis aims to provide. This chapter therefore explores the literature around the two principal units of focus of this research, namely 'home computers' and 'the family'.

The notion of 'family' is first explored in Section 2 and then developed further in Section 3 through a contemporary account of the family as problematic, and conflictual. These two sections rely mostly on ideas developed in the sociological literature, highlighting the most prominent concepts relevant to this research. Among those concepts, the issue of conflict is developed in more detail, and its implications for the empirical phase of the research are examined.

The second area of interest is the notion of a 'home computer' as a domestic technology. As noted, the literature on home computers is rather limited. In contrast, there is a wealth of literature concerned with other types of home technologies, such as the so-called domestic technologies as well as the media and communication technologies. Such literature can bring to light ideas and concepts useful to comprehend the role of computers in the family. Section 4 therefore

examines the literature concerned with the various forms of home technologies and how they have been seen as fitting into family life. Section 5 investigates in more detail the literature of home computer technology, examining the literature on teleworking and computer games as well as discussions around the psychological effects of computer technology.

This overview of the literature on 'the family' and 'home computers' carried out in Sections 2 to 5 allows for the extraction of a series of emergent themes to be used in the research. Section 6 presents and briefly develops these themes, examining their relevance for the rest of the research. Section 7 concludes by summarising those themes in a table and briefly outlining how they will be used in the rest of the dissertation. Table 2.1 summarises the main areas of the literature explored in this chapter and the main themes that we saw as emerging from this exploration.

| Main 'departure' themes in our literature review |
|---|
| The notion of family |
| Domestic technologies |
| Media and communication technologies |
| Computer technologies |

| Main themes emerging from the literature |
|---|
| Conflict and tension between genders and between generations |
| Resources (time, space and budget) |
| Public and private spheres |
| Anxieties and concerns |

Table 2.1: 'Departure' themes and emergent themes from the literature review

## Section 2: The notion of family

In order to gain an understanding of the working and functions of the family, it is necessary to explore the large body of sociological literature pertaining to the notion of family. This section briefly traces the main lines of the evolution of sociological theories of the family, and explores in more details those theories that appear most related to the research work undertaken for this thesis. Sociological research has had to deal with a variety of questions concerning the family and this section investigates how some of those questions have been addressed over the years. It should be noted here that this thesis does not claim to provide a comprehensive analysis of sociological theories of the family. It is inevitable that our study will be restricted to a broad account of the development of concepts of the family, and the work of those authors who appeared most relevant for the purpose of this thesis. This study does not pretend to draw generalisations (or make wider judgements) regarding the various sociological trends described below. For example, we are deeply aware that the notion of 'feminist thinking' is the subject of many debates among social theorists and among feminists themselves.

From the beginning of the discipline of sociology, the structure and the functions of the family have been investigated at length by leading sociologists and by social theorists (Davis, 1948; Parsons, 1949, 1951, 1955). Most of them have based their research and analysis on the assumption that the family is universal and a fundamental element of all societies. In particular, many authors from the period immediately following the Second World War seem to have implicitly accepted the universality of the family as a basis for their work (Davis, 1948; Parsons, 1951,

1955; Goode, 1963, 1964). Such a consensus seems to have reached a point of 'crisis' during the 1960s with the rise of alternative theories of the family (Cheal, 1991). In particular, feminist writers were instrumental in shaking the traditional sociological belief that the family is inevitable and universal (Delphy, 1976, 1979; Hartmann, 1981). Further, by challenging the notion of the family as a monolithic, coherent and goal-oriented institution, feminist writing contributed to the problematization of the family as a sociological concept and to shedding light on the existence of conflicts within the family (Smart and Smart, 1978; MacIntosh, 1978, 1979; Barrett, 1980; Hartmann, 1981; Barrett and MacIntosh, 1982). This idea of conflict is developed further in this chapter (Section 3) and the following ones and is a basic mode of analysis for the empirical data, with domestic computers seen as generating and mediating tense and conflictual relationships.

While the family may have been taken as a universal of human society one of the most popular themes has been the variation in family structure and composition across time and space. The two most familiar types of family in the Western world are probably the nuclear ("a husband and wife and their immature offspring", Haralambos and Holborn, 1995, page 317) and the extended family, which includes members of the same generation (horizontal extensions) or of precedent and subsequent generations (vertical extensions). The perceived prominence of the nuclear family in contemporary Western cultures has given rise to a number of interpretations and prompted various sociological studies. For example, Nimkoff and Middleton (1960) highlight a relationship between family structure and a number of economic factors. They observe that families in nomadic societies,

where little is passed from one generation to another, were typically small as opposed to the extended families of agricultural societies that could rely on more stable food sources. The nuclear family, they argue, then became dominant in contemporary western societies because of the emphasis put on the mobility of workers throughout the industrial age. Goode (1963) offers a similar explanation of the nuclear family's dominance in the western world: since the industrial society is open-class, workers do not rely on family ties or accumulation of land for advancement but on their work alone, which requires geographical mobility. However, nuclear families, as described by Haralambos and Holborn (1995), are not statistically in overwhelming majority, even within the boundaries of the Western World. Thus, for example, lone-parent families, in particular matrifocal (i.e. female-headed) families, have been the focus of much sociological investigation exploring the reasons for their existence and attempting to assess their degree to pathology. For example, authors such as Baker (1999), Cherlin (1983), Ermisch and Wright (1996), Haralambos and Holborn (1995), Rendall (1999) have investigated the economic, cultural and historical factors that may play a role in the making of single-parent families.

If we go in search of a theory of the family it appears that the first two decades following the Second World War were largely dominated by functionalist approaches to the family. Functionalists view any human institution as playing "a positive part in maintaining the social equilibrium and harmony in society" (March *et al.*, 1996, page 412). Therefore, when studying an institution, they concentrate on identifying its functions and try to demonstrate the benefits of such functions for

the members of this institution and for the wider society. One of the underlying assumptions of the functionalist approach is that society has certain functional prerequisites that must be fulfilled in order to operate efficiently. A functionalist approach to the family is concerned with the degree to which it fulfils the functional prerequisites of society. Different functionalist theorists of the family held sometimes different views on the nature of those prerequisites. Davis (1948) identified the four main functions of the family as reproduction, maintenance, social placement and socialisation of the young. Murdock (1949) also identified four basic functions of the family, but described them as being sexual, reproductive, economic and educational. Parsons (1951, 1955), who concentrated his analysis of the family on contemporary American society, considered the two basic functions of the family to be the socialisation of children and the stabilisation of adult personalities in society. The family, he argued, provides children with a stable environment in which they learn to be acceptable members of society and adults with emotional security.

The above examples offer a restrictive view of what was (and is) a fundamental and complex sociological concept. However, these examples are representative of a general convergence among functionalist thinkers: although they held different views on what the functions of the family were or should be, the functionalists did converge towards one very important shared assumption, that such functions and prerequisites existed and that families were generally united towards the pursuit of those goals. This observation has led some authors to refer to the first few decades after the Second World War as a period of consensus (Mullins, 1973). However,

after several decades of apparent consensus and unity, theories of the family underwent a major revolution, which Cheal (1991) graphically refers to as a 'Big Bang'.

This realignment in family theories may have resulted from the conscious decision of a number of sociologists (Burr, 1973; Hill and Hansen, 1960) to break out of the barriers established by theoretical approaches. Those barriers, they believed, distracted scholars "from the work of refining concepts for research use" (page 7). The key element in the dissolution of the consensus is to be found in the distinction between the family unit and its members. Such a distinction had mostly been absent from the sociological family theories that were prevalent in the 1950s and the early 1960s, particularly the theories developed by Parsons (1955) and Goode (1963, 1964):

> [...] it came to be understood that the conceptual frameworks which were first elaborated in the 1950s had been potentially complementary, or at least were capable of peaceful coexistence, because they all had one thing in common: they had either ignored or played down conflicts in relations between family members [...] (Cheal, 1991, page 9).

The emergence of new theories in the 1960s – in particular the feminist theories – challenged the idea of a family as a unified interest group, in direct opposition with the standard sociological approaches of the former decade. Hartmann (1981) describes how the model of a family as an 'agent' came to be replaced by a model of family as a 'location', which reflects the idea of family members sharing a common geographical place rather than common goals. In this common geographical place, different activities (the production and redistribution of

resources) are carried out and different individual interests come into conflict with one another. This, the early feminist analyses argued, is driven by individuals membership of gender categories, as well as being members of a family unit (Baker, 1984; Barrett and MacIntosh, 1982; Bernard, 1982; Thorne and Yalom, 1982). Feminist writers first broke with the theoretical 'establishment' by arguing against the view that the co-resident nuclear family with a gendered division of labour is the only legitimate form of family (Dahl and Snare, 1978; Delphy, 1976; Eichler, 1973; Reiter, 1975; Sacks, 1974; Smith, 1973). They rejected the idea of any specific family form being 'natural' or based upon presumed 'biological imperatives' (Abbott and Wallace, 1991). But also, and perhaps more importantly, feminists emphasised the idea that different members of families experience family life in different ways. Eichler (1981) echoes those concerns when she attacks the weaknesses of a 'monolithic' model of the family that assumes a large amount of co-operation in family activities and ignores that most activities are in fact carried out independently from one another and outside family groups. She thus recommends the adoption of a multidimensional model of familial interaction that would test the degree of congruence between the different dimensions.

The argument developed above regarding conflict within the family may be taken further and extended to a multitude of other social groups or categories an individual may be member of as well as being a member of a family. Thus a re-evaluation of monolithic models had been carried out in other areas of sociological research - such as the bureaucracies studied by Weber (1930) - for several decades before the Big Bang of family theory. However, although it was prominent in many

areas of social theory it seems not to have reached the area of family life before the 1960s. Feminist theorists have interpreted this phenomenon as resulting from an artificial differentiation between the family and other areas of social research. Some authors (Barrett and MacIntosh, 1982; Wearing, 1984) have put the blame on the ancient assumption that the family is some sort of sacred element, or at least surrounded by an aura of sanctity that forbids any deconstruction or decomposition.

## Section 3: The issue of conflict: problematizing the family and the domestic sphere

We have seen in the last section that the idea of conflict was central to feminist theories of the family. In highlighting the issue of conflict in the family, feminist writers also brought to light a related set of issues of control and power that had been played down in earlier trends of thought. The division of labour within the household, for example, has been seen as a means of oppressing women and restricting their prospects within the broader world of social interaction (Barrett, 1980; Delphy, 1979).

However, we need to recognise that the notion of conflict was by no means restricted to feminist thinking. In particular, the notion of conflict may help us understand what has been considered a major shift among social theories of the family, namely the shift from modernism to anti-modernism (Cheal, 1991). Parsons's (1955, 1951, 1960, 1967) theories of the family, and their critiques (Bellah *et al.*, 1985; Popenoe, 1988, 1993, 1999), provide a useful illustration of the opposition between modernist ideas of continuous progress and anti-modernist

thinking that considers the family to be in decline or inherently problematic. The distinctive element in Parsons's theories has been seen as residing in his modernism. The word 'modernism' refers here to the belief that there is a universal direction to social change and that all evolution is an improvement and leads to superior forms of social existence. The modern nuclear family, being the result of adaptive upgrading, is considered superior to earlier family forms. In particular, the removal of economic productive activity from the home allows members to devote more time and attention to other functions such as the emotional involvement between spouses and the participation in children's learning experiences.

Such optimism is challenged by critiques of Parsons, among which figure David Morgan (1975), who argued that families must not only be described in terms of the functions they perform, but also in terms of their 'dysfunctional' aspects. Many anti-modernists even consider pre-industrial times as some sort of 'Golden Age' of family life where family obligations were stronger and more fulfilling. They denounce what they see as a decline in family life using a variety of criteria to illustrate their arguments (weakening of economic ties, increased instability, etc.). Typically, they see the overarching cause of family decline (the family as problem or arena for conflict) as being the growth of individualism, which in turn is a result of the modernisation process, because it equates progress with self-fulfilment at the expense of the family and, by extension, the community (Popenoe, 1988, 1993, 1999). We should also note that such accounts have been criticised too, for example Finch (1989) suggests that even prior to the industrial revolution, most of the

assistance between relatives be based on mutual self-interest rather than on selflessness.

There is, however, a need to go beyond the dichotomy modernism/anti-modernism or progress/decline. Morgan (1975), for example, considers the terms of 'function' and 'dysfunction' to be inadequate because they are commonly used to refer respectively to ideas of normality and abnormality. He calls for the need to analyse family life in terms of its inherent contradictions expressed through relationships. Such an investigation of family interaction has been discussed by theorists such as Bellah *et al.* (1985) and carried out in practice through the marital therapy process. In *The Family: Politics and Social Theory* (1985), Morgan gives an explanation and illustration of the resulting 'medical model of marriage'. He first highlights a shift in the medical profession from the treatment of a patient as a 'whole person' towards an objectification of the patient's body. The body ceases to be the property of a patient and can then be professionally manipulated. The objectification of the body allowed for the identification of specific diseases and illnesses, which led to an increased specialisation within the profession. He then explains how the medical discourse has increasingly been used in areas of life, which were previously excluded from medical analysis. The growth of medical concern for mental health and the emergence of various forms of therapy are symptomatic of the incursion of medical models in the analysis of broader societal and ethical issues including the family.

Morgan identifies a number of implications of the medical model for family life. The medical model presupposes the existence of four elements. The first element is

of a distinct class of problems referred to as 'marital problems'. The second element consists of a body of professionals trained not only to 'treat' those problems, but also to identify them as marital in the first place. A body of specialised knowledge and theory that those professionals can study and apply to real-life situations constitute a third element. The fourth element refers to a specific world-view or ideology embracing the various theories developed within the field. There are, however, fundamental differences between the practice of family therapy and other medical pursuits. In particular, the notion of 'cure', which appears mostly straightforward in those areas of medicine that deal with tangible physical problems, does not seem to make much sense from a marital counselling perspective. The idea of a 'successful outcome' is much more diffuse in the case of marital therapy than in many medical therapies.

This view of the family as problematic, analysable and thus treatable offers a further interesting account of the contemporary family. While feminists and anti-modernists decry or lament the modern family, exploring the processes by which it oppresses or alienates, others set out to 'engineer' its processes, implicitly returning to some functional account.

## Section 4: A review of the literature on family and home technology

Technological change has long been seen as bringing about major modifications to the realities of family life including 19$^{th}$ century innovations such as piped water, sewerage, gas light. Yet, it is also the case that contemporary social science research in the field of information and communication technologies pays more

attention to technological advances within the workplace than to issues related to the use of home technology. Influential work in this area include studies of business technologies and their relation to the working life of workers in general (Montgomery, 1979; Jones, 1982; Hirschhorn, 1984; Kraut, 1987; Webster, 1991; Adler, 1992; Zuboff, 1989) and women in particular (Baker, 1964; Wright *et al.*, 1987; Webster, 1990; Green *et al.*, 1993; Webster, 1995).

This is not to say that the social sciences ignore issues related to technological change and its effects on family life. Much research does exist, but it often addresses the issue of family life in a rather 'indirect' way, for example by studying the repercussions of industrialisation on the structural and functional characteristics of the family (Ogburn and Nimkoff, 1955; Winch, 1953; Goode, 1964; Parsons, 1966). Among the various functionalist studies of the family, Parsons's (1966) analysis of family functions over time has been one of the most influential for later sociological work. Parsons's (1966) study suggests that industrialisation has resulted in removing many functions from the family system, until all, except for the 'consumption' function, disappeared. Functionalists argue that the reduction in the number of functions carried out by the family is the cause of families' reduction in size and of the loosening of family ties (Parsons, 1951; Goode, 1963, 1964; Rosser and Harris, 1965).

Parsons's view of industrialisation as a primary factor of change within the household has been used by later sociologists, such as Wajcman (1991), who illustrates the 'production to consumption' model with examples such as food, clothing and health care.

> By the beginning of the twentieth century, the purchasing of processed foods and ready-made clothes instead of home production was becoming common. Somewhat later, the health care system moved out of the household and into centralized institutions (page 84).

However, other authors such as Cowan (1983) have disputed the validity of Parsons's framework by suggesting the existence of a reverse process. An illustration of this reverse process is to be found in the example of transportation activities, which have become more and more the responsibility of the household throughout the twentieth century. It is suggested that this represents a move from net consumption to net production of service. This dissertation investigates (Chapters Five and Six) how the introduction of computers in the home also participated to contradict Parsons's model (1951, 1966). In particular, it could be argued that the rise of teleworking has a substantial potential to 're-establish' productive work within the home, and a number of the families studied do use their computers to sustain productive activities including family businesses.

The literature referred to above describes the impact of technology on the family via its use in economic life. It is concerned with how technological transformations within the workplace affect the worker both at a professional and at a personal level, which in turn brings about repercussions within the realm of family life. This thesis does not deny the validity of such research but proposes to balance it by offering a different perspective on technology and the family. Instead of focusing on the technological transformations that occur within the realm of work and industry and their broader influence on society, this thesis considers technology found inside and within the home and considers it from a broader and more diverse

perspective than simply economics of production. Therefore, the rest of this section goes on to study technologies that are used within the domestic setting.

When turning to the literature dealing with technologies within the domestic setting, the individual/technology interaction appears to take precedence over the relationship between technologies and the family as an entity. In particular, large amounts of academic and journalistic writing study the presumed 'impact' of various types of technology on individuals and their lives. This section therefore includes many references to the literature exploring psychological perspectives emphasising and addressing the way in which humans understand and relate to technology, or are influenced and changed by technologies. Furthermore, we see that throughout this type of literature, particular attention is paid to the potential development of 'deviant' behaviour such as violence, antisocial activities or addiction through the use of technology.

Until now, this chapter has been referring to home technologies as if they formed a coherent whole. However, the literature often concentrates on one of three types of home technologies, namely domestic technologies, communication and media technologies, and computer technologies. It has to be noted that there is a certain amount of overlapping between those categories: for example, the computer may be considered both a computer technology and a communication technology. For the purpose of clarity, this chapter deals with each type of technology separately. The following three sections investigate the interaction of each type of technology with the human mind and with human behaviour at the individual and family level.

***Domestic technologies***

The notion of home technology as a research construct seems to have been first embodied by the developments of electrical household appliances (Du Vall, 1988; Hardyment, 1988). In the light of the discussion above on the prominence of workplace technology in research, it is interesting to note that the literature on domestic technology often relates to the approaches and findings of the literature on technology in the workplace. For example, Cowan (1976) draws a parallel between the changing home environment and the industrial revolution. New technologies are often seen as a factor of 'industrialisation' of the home and were initially expected to translate into a radical transformation of domestic labour (Toffler, 1980). However, other research suggests that such a transformation has been far less dramatic than expected (Cowan, 1983; Oakley, 1974; Rothchild, 1983). Some authors focus on the question of whether and to what extent the 'industrialisation of the household' has contributed to reducing time commitments (Ravetz, 1965; Vanek, 1978a, 1978b; Thrall, 1982; Oropesa, 1993; Giles, 1993). Most research has suggested that although domestic technology has raised the productivity of housework, it is accompanied by a rise in overall expectations (Jackson, 1992), principally in terms of cleanliness standards (Cowan, 1983, 1985), which leaves the domestic worker little better off.

The issue of gender pervades the literature on the 'industrial revolution in the home' and many feminist sociologists have explored the issue of technology's 'failure' to liberate women from household chores (Kline, 1997; Murcott, 1983; Rothchild, 1983). The literature abounds with qualitative and quantitative research

measuring or interpreting the allocation of time vis-à-vis housework and the gender division of labour within the household (Aslaksen *et al.*, 1996; Berg, 1988; Berheide, 1984; Cowan, 1983; Davidson, 1982; Hantrais and Letablier, 1997; Marini and Shelton, 1993; Robinson, 1996; Sanchez and Thompson, 1997; Sullivan, 1997; Vanek, 1978a, 1978b). Throughout this literature, women's work is often depicted as being of an ever-expanding nature (Berg, 1988; Cowan, 1983; Vanek, 1978a, 1978b), and feminist technology studies report little 'progress' in the domain of gender relations in the home (Berg, 1988; Lie *et al.*, 1988; Zimmerman, 1986). In particular, domestic technology has been seen as intensifying the traditional sexual division of labour between husbands and wives and as reinforcing the boundaries around what is commonly regarded as masculine and feminine roles within the household (Bose, 1979; Bose *et al.*, 1984; Rothschild, 1983; Thrall, 1982). Another argument found in the literature relies on the hypothesis that new ideals of femininity have broadened the range of women's duties as well as their involvement in those duties (Wajcman, 1991). Housework has come to be seen as a way for women to express their affection to their family, as suggested by Cowan (1976, 1983).

> Laundering had once been just a task to be finished as quickly as possible; now it was an expression of love... cleaning the bathroom sink became an exercise for maternal instinct protecting the family from disease (Cowan, 1983, page 177).

This prevalence of the image of housework as an expression of love has been interpreted as a perpetuation of patriarchal values, enacted by men striving to keep their privileges under changing economic and social conditions (Jackson, 1992).

Similarly, Fox's study of magazine advertisements illustrates the idea of housework glorification and glamorisation through the media (Fox, 1990).

Other interpretations have been put forward to explain the relative failure of the 'scientific management of the home'. It has, for example, been argued that household duties are by nature varied with a low rate of repetition, which directly contradicts the taylorist philosophy that lies behind the idea of mechanisation of housework (Berch, 1980). Also, the designing process of domestic technologies has been the target of many criticisms. Cockburn (1997) notices a discrepancy in investment levels between domestic technology industries and industries concerned with other types of technology. Authors such as Berg (1991, 1995) have denounced the existence of inconsistencies between users' needs and designers' views as regards domestic appliances. In particular, it is suggested that male designers have a poor understanding of the female user and of general household needs (Chabaud-Rychter, 1994; Cockburn, 1997).

***Media and Communication Technologies***

Among the various technologies to be found in the home, media and communication technologies have been the focus of much academic research. In particular, and in contrast to domestic technology, the influence of media technology on the mind has prompted much popular concern over several decades and been the subject of various types of academic investigation. It is necessary to recall here that the debate around home media technology cannot be fully understood without references to the broader body of knowledge of media and

cultural studies. Among the studies of media influence on individuals, one encounters a large array of media forms ranging from popular music (Brunner, 1995), newspaper and magazine articles (Beaulieu and Lippman, 1995; Imamoglu *et al.*, 1990; Keller, 1994), to literary (Kaplan, 1992) and cinematographic texts, as well as various types of advertisements (Lewis and Neville, 1995; Mwangi, 1996; White and Gilett, 1994). The twin issues of messages and images are a prominent theme within the media literature. In particular, media of all types have been accused of divulging or facilitating access to the 'wrong' kind of information, giving rise to a large number of studies about the nature of media influence on the general public's understanding of facts or perception of situations.

A first concern has been the stereotypical portrayals prevailing in the media. Media depiction of stereotypes is often seen as hindering the human capacity for objective judgement and drives the public to resort to standardised answers and reactions. Among them, many focus on the content of images or messages conveyed to the public. To quote but a few examples, one may refer to Harris (1991), Vasil and Wass (1993) or Kubey *et al.* (1995) who express concerns regarding the spread of racism and ageism as a result of 'biased' media representation of certain segments of society or to Lutz and Collins (1993) who denounce National Geographic's 'glamorisation' of foreign cultures.

An in-depth study of the nature of the various alleged media influences on the general public is probably of little relevance for this thesis. Nevertheless, it is interesting to examine in more detail the contention that the media create or reinforce stereotypes, particularly regarding gender roles (Imamoglu *et al.*, 1990;

Coltrane and Kenneth, 1994). It has often been argued that representations of the female body throughout media images foster the objectification of women (Lanis and Covell, 1995; Franckenstein, 1997). Also, women are said to be under-represented in fictional depiction or even 'factual' reports of activities traditionally seen as more masculine such as sports (Rintala and Birell, 1984) and professional jobs. The stereotypification of gender roles raises particular concern regarding children, who are often assumed to be more credulous than adult viewers (Chu and MacIntyre, 1995). However, this is a disputed assumption and it has been argued that an awareness of such bias has brought about some changes in media representations of individuals and situations. For example, Thomson and Zerbinos (1995)'s research on children's cartoons pre and post 1980 suggests that there has been a significant shift towards a less stereotypical portrayal of the characters.

Other issues such as violence and pornography are also discussed at length throughout the literature. It is often proposed that depiction of violence by the media contribute to the acceptance of violence as normal and may eventually foster violent behaviour. There is a wealth of literature dealing with the effects of television watching on real-life violence. Some authors (Lagerspetz and Engblom, 1979; Paik and Comstock, 1994; Viemero, 1996; Esser and Brosius, 1996) argue that there is a significant correlation between exposure to depiction of violence on television and aggressive behaviour. In this work, one often finds the argument that exposure to violence not only increases short-term aggressiveness but also increases an individual's tendency towards anti-social and criminal behaviour (Hughes and Hasbrouck, 1996). Others vehemently refute such arguments and offer

opposite evidence (Felson, 1996). Another concern present in the literature is the amount of children's imaginative play or 'fantasy play' and its relation to television viewing (Singer and Singer, 1976; Silvern and Williamson, 1987; Vandervoort and Valkenburg 1994). The relationship between television viewing and imagination has also been studied among adult subjects (Schallow and MacIlwraith, 1986-87; Valkenburg and Vandervoort, 1994). The issues of fantasy and imagination in relation to computers will be discussed further in Section 5.

The issues of violence and fantasy are by no means the only focus of public opinion or academic research. In particular, the availability of pornographic material through the media raises two sorts of concerns. Firstly, many parents, educators and policy makers are concerned with the suitability of some information available to children. Secondly, it is often argued that pornography may also be harmful to adults because of its capacity to provoke or encourage the sexual exploitation of women and children (Koop, 1987; Osanka and Johann, 1989).

We can also see a significant difference between the mass-media-related issues and those addressed by research on communication technologies, including the telephone, the fax, the answering machine and the mobile phone. Media research concentrates mainly on the content of the messages whereas communication technology research focuses more on the nature and quality of interpersonal relationships as enabled by technology. It has thus been argued that telecommunication technologies have altered human communication patterns, in particular have reduced the role of non-verbal forms of communication resulting in the deterioration of trust and intimacy (Green, 1996). The issue of gender equally

pervades the literature related to communication technology. For example, some authors have described gender differences in attitude towards the telephone. Livingstone (1992) reports that the telephone has more emotional meaning for women than for men, who see it as "just functional" (page 122). More generally, data indicate that women are more comfortable with communication-related technologies, while men are generally more attracted to entertainment technologies and control devices (Mundorf *et al.*, 1992).

Gender differences also manifest themselves through behaviour. It has been noticed that the telephone was primarily marketed as a business tool, with a male target population (Fischer, 1988). Despite this marketing focus on male users, women seem to have 'appropriated' the telephone for more social and personal purposes (Fischer, 1988). Many studies of the role of the telephone in women's life have set to counter the stereotypical image of female telephone conversation being less 'serious' or 'important' than male use of the telephone. Rakow (1988) and Moyal (1992, 1995) describe how social phoning supports women's role of maintaining links with the wider family and enables them to sustain networks of contacts with other women. In her study of the telephone in a small midwestern farming community, Rakow (1992) argues that the telephone helps women maintain the social fabric of the community. Even the cellular telephone, which is often pictured as a business instrument, has been found to be used by women (even employed) mainly for domestic purposes (Rakow and Navarro, 1993).

Overall, in this section, as we have considered the family and home technology, three main themes or approaches to study emerge. The first is the relative failure of

domestic technology to 'liberate' women from household chores. A second stream of literature revolves around the themes of media influence over individuals, in particular through the diffusion of stereotypical images and concepts. The third stream of ideas, which is of particular interest to us, deals with the place and role of such technologies as domestic objects. In the next section, we move on to consider the literature on computer technologies in the home, and identify a further set of themes and approaches within the literature.

## Section 5: Computer Technologies

When we turn to the literature on computers in the home, we see a number of different themes emerging. A number of themes pervade the literature on computers in the home. First, the motivations behind the purchase of a home computer have been studied in the light of the perceived practical, economic and social advantages of owning a home computer. Second, issues related to teleworking and working from home with computers have raised a number of hopes and concerns regarding business efficiency and employees' welfare. In the often-quoted phrase, 'More people are studying teleworking than doing it'. Third, numerous research works have investigated the effects of home computer use in models of 'impact'. These impacts may be expressed in many ways, in terms of deviant behaviour, violence, gender inequalities or as positive in terms of support for education, citizenship and community.

### *The decision to purchase a home computer*

Many authors have studied the process of adoption of home computer technology. It is widely recognised that the decision to purchase a home computer is a complex process involving different family members with different and sometimes conflicting agendas. The nature of the factors that may influence such decision has been studied in depth by authors such as Rogers (1985), MacQuarrie (1985), Haddon and Skinner (1991), and Santerre (1993). The diversity and contradictions in the findings of these authors suggest that the motivations behind the act of purchasing a home computer are a complex mix of practical considerations and of socially constructed perceptions of what the computer may represent or symbolise. On the one hand, a home computer may be acquired to fulfil a particular purpose and the perceived capability of the computer to fulfil this purpose will be the major determinant in the purchasing process. Such purchases may involve a number of practical considerations, such as issues of price, physical capacities or compatibility (Trachtman *et al.*, 1991). On the other hand, the way the purchaser perceives the role and status of computers in society is a determining factor in the process of decision-making. Haddon and Skinner (1991), for example, suggest that the introduction of computer technology into British households was motivated more by the status of the computer - as a symbol of progress - than for purely utilitarian purposes. In particular, the home computer has often been marketed and perceived by the general public as an educational tool. The literature on domestic technologies reviewed in Section 4 raises the questions of whether technology saves time or labour and whether it modifies the sexual division of labour. The

same idea had been developed by MacQuarrie (1985) who coined the term 'computer imperative' to refer to the belief that involvement with computers is both beneficial and necessary.

Such questions are relevant to this study of computer use in the family, as will be seen in the data collected. Although not every activity associated with home computer use is expected to save time, there is often a general expectation that a task performed on the computer should be done better and more quickly than if it had been done manually. Issues related to the complex intertwining of 'intellectual' and 'practical' motives when purchasing a home computer are discussed in more detail in Chapter Six in the light of the findings of this research.

***Work and teleworking***

As noted above, one of the main tenets of the functional model of the family in the 20th century was that it was a unit for consumption not production. And yet, many homes, and many families continue to contain productive work of one kind or anther. Thus one of the prime drivers of computing within the family is the need for members to engage in work (or their outside interests and duties such as school). Teleworking has been regarded as an important phenomenon since the very first teleworking experiments in the 1970s. A number of the issues that are raised by the practice of teleworking are equally relevant when studying computer-based supplemental work from home (Venkatesh and Vitalari, 1992) and the topic of teleworking often opens the way to a broader discussion of computers in the home (Habib and Cornford, 1996). The literature has highlighted that working at home

has consequences not only to the workers themselves, but also to the organisation they belong to and to society as a whole. However, the literature related to teleworking rarely focuses on the family itself as the centre of study. This section is devoted to presenting an overview of the existing literature on teleworking and to discussing its relevance to the investigation conducted for this research.

A large part of the literature concerned with the experience of teleworking concentrates on the managerial and organisational as well as the technical issues related to teleworking. Some publications discuss almost exclusively the technical issues related to the equipment required for a teleworking scheme (Farmer, 1995; Gupta *et al.*, 1995; Tung and Turban, 1996). Others are dedicated to providing business "tips" to establishing successful telecommuting programmes in organisation (Jacobs and Vansell, 1996; Nilles, 1997). Factors such as cost reduction, improved performance and enhanced flexibility are mentioned throughout the management literature on teleworking. Wider societal issues have also been raised when considering the future of teleworking. For example, a rise in the percentage of workers spending part or most of their working time at home is expected to reduce traffic congestion, thereby curtailing the number of road traffic accidents, alleviating air pollution levels and allowing substantial energy savings (Handy and Mokhtarian, 1995; Mokhtarian *et al.*, 1995; Koenig *et al.*, 1996; Henderson and Mohktarian, 1996). The facilitation of homeworking is also seen as allowing the de-concentration of cities (Hall, 1996) and the development of rural areas (Richardson and Gillespie, 1996).

A number of authors have focused on the situation of individual teleworkers, their lifestyle and working conditions, and broader issues of workers' rights and labour law (Salomon and Salomon, 1984; Olson, 1983; Huws, 1984, 1989, 1991, 1993, 1995; Huws *et al.*, 1990, 1996, 1997; Haddon and Silverstone, 1992, 1993). While a large part of the literature offers practical advice on 'how-to-do it' (Gray *et al.*, 1993; Reid, 1994; Langhoff, 1996, 1999; Shaw, 1996; Bredin, 1996; Piskurich 1997; Bredin and Lagatree, 1998; Fetzer, 1999), other publications take a more reflective view on the expected and actual benefits and disadvantages of teleworking from home (Olson and Primps, 1984; Hamilton, 1987; Khalifa and Etezadi, 1997; Hill *et al.*, 1998; Kurland and Bailey, 1999; Steward, 2000). It is commonly accepted throughout the literature that opting for teleworking affects not only one's working conditions but also and, perhaps more importantly, one's career prospects (Kinsman, 1987; Khalifa and Etezadi, 1997; Baines, 1999; Baruch, 2000). The existence of a wage gap between teleworkers and office workers has raised concerns regarding the 'casualisation' of work and the deregulation of the labour market (Bisset and Huws, 1984; Huws, 1984, 1989, 1991; Huws *et al.*, 1996, 1997; Kraut, 1989). Menzies (1997) suggests the existence of a general trend toward a two-tiered workforce and income polarization. A wealth of literature covers the issues of occupational safety and health in teleworking environments either from a social policy angle or from a legal point of view (Christensen, 1988; Martin, 1995; Sudbury and Town, 1997). Some authors advocate the need for collective agreements and regulations to counter the risks and hazards associated

with teleworking (Bisset and Huws, 1984; Huws, 1984, 1989, 1991; Huws *et al.*, 1996, 1997).

However, it has to be recognised that a lot of the issues that teleworking raises are far from tangible or measurable. It has been argued (Haddon and Lewis, 1994; Habib and Cornford, 1996) that teleworking is often not perceived as 'serious' work, which may contribute to uncertainty and misunderstandings about the status of teleworkers in today's professional and social structure. In particular, the status of the home worker may be damaged due to the fact that other members of the family may perceive them as 'not really working'. Some authors have referred to the lack of institutional or 'social' legitimacy of teleworking as the main hindrance from a worker's perspective (Habib and Cornford, 1996; Westfall, 1997). In the long run, the lack of involvement in office life may also hinder a worker's career (Khalifa and Etezadi, 1997). On the one hand, isolation leads to deskilling and reduced training and knowledge acquisition opportunities. For example, Raghuram (1996) argues that the existence of physical distance between workers challenges their abilities to acquire tacit knowledge. Equally, the lack of informal interaction among colleagues may reduce the scope for career development. At a more personal level, the lack of socialisation may affect the teleworker's motivation and job satisfaction (Wellman *et al.*, 1996; Duxbury *et al.*, 1996).

It might be recalled that issues related to the notion of individual well being go beyond the above concerns regarding working conditions or career prospects. It has to be remembered that opting for teleworking often derives from a wish to combine work and other duties such as family care giving. Some authors have explored the

psycho-physiological effects of telework on individuals, covering issues such as stress (Conner *et al.*, 1993; Trent *et al.*, 1994; Duxbury *et al.*, 1996) and coping behaviours (Norman *et al.*, 1995). Others refer to the temporal and spatial 'blurring of boundaries' between 'home' and 'work' (Ahrentzen, 1990; Hardill *et al.*, 1997; Mirchandani, 1998) as well as the boundaries between public and private spheres. For example, Kraut (1989) argue that women who choose to work at home do so partly because it allows them time for domestic work, and then end up spending more time on domestic tasks than office workers. The issue of these public and private spheres will be developed in more detail in Section 6.

Although this research never intended to focus on teleworking *per se*, we came across several examples of computer-based work at or from home in the seven cases of families used as the basis for our empirical work. We will see that work practices and arrangements vary greatly and none of them really matches the definition of teleworking in the 'strict' sense. While some respondents were running a business from home, others 'transferred' a number of computer-based tasks from the workplace to the home or used the home computer to keep in touch with the happenings in the family business while away on educational leave.

***Computers and causality***

Another distinctive literature investigates the 'cause and effect' relationships between computer use and human behaviour (Emes, 1997). In particular, the 'coming of the information age' has been seen as setting into motion a host of transformations in society, and within the family, that stem more or less directly

from the existence of this technology. Early research work on computer technology revealed the existence of anxieties regarding the potential disruptive or destructive effects of computer use from two main perspectives. At the business or organisational level issues such as software theft and the dangers of viruses (Burger, 1988; Forester and Morrison, 1990) have been raised. At a more 'personal' or individual level, computer use has been associated with problems regarding the possible invasion of privacy (Martin, 1973; Porat, 1978; Masuda, 1979; Beniger, 1986; Gandy, 1989; Wright, 1990; Forester, 1992), threats to civil liberties (Porat, 1978; Johnson, 1984; Smith, 1986; Lyon, 1988), and the potential excesses of social control that may occur as a result of an electronically-facilitated gathering of personal information (Uncapher, 1991; Tribe, 1991). While such anxieties have remained a subject of concern over the years (Wand, 1995; Gaitenby, 1996; Loader, 1997; Kang, 1998; Wang *et al.*, 1998; Marx, 1998; Gasaway, 1998; Fromkin, 1995; Tang, 1997), recent work has focused more particularly on ethical and moral issues regarding the content of information made available through the use of information technology, and, in particular, the Internet (Spencer, 1997).

At a more micro level, issues such as the threat posed by technological change on family cohesion and communication have been discussed (Ferrari *et al.*, 1985). In many instances, research focuses on themes such as that of the social isolation and lack of human contact experienced by computer users (Bergheim, 1989). The loss of contact with the real world of time and space has also been a subject of concern (Nguyen and Alexander, 1996). Other authors highlight the paradoxical aspects of having a technology responsible for a loss of human contact while this same

technology allegedly enables the creation of a 'global community' (Bergheim, 1989).

Some human groups are perceived as being particularly sensitive to the direct or indirect influence of computers on various aspects of their lives and personality. Such groups include children and women. Research on the effects of computer use on children's social life and mental development seems to have been prompted by the overlapping waves of school computerisation and home technology developments including computer games (Clements and Gullo, 1984; Becker, 1986; Dalton and Goodrum, 1991; Watson *et al.*, 1992, Sakamoto, 1994; Fletcher-Flinn and Suddendorf, 1997; Emes, 1997; Dill and Dill, 1998; Liu, 1998; Orleans and Laney, 2000). Concerns have also been raised among feminist writers and other researchers involved in investigating gender inequalities. In particular, a number of authors (Buswell, 1991; Curry and MacEwen, 1989; Evetts, 1994; Consalvo, 1997) have discussed the issues of access to information technology as well as gender-related differences in abilities and interest towards technological matters and their consequences for employment and career opportunities.

As you would expect, some of the concerns researched throughout the media studies literature have translated into the literature related to computer use. There is no doubt that the computer presents some of the characteristics of other media technology: softwares such as games or encyclopaedias do convey images and messages that may influence users' perception of themselves or of the world. However, this dissertation argues that the theoretical and methodological approaches that have been used to study media technology cannot be simply and

uncritically applied to the study of home computer without some prior understanding of the key differences between the two types of technology. For example, the issue of violence has been particularly prominent throughout the various studies of media. However, the approach towards research on violence and computers will necessarily differ from the approach used to study violence in the media. Although the debate on television violence has some relevance to, for example, the use of computer games, there is a need to consider other aspects of violence that are characteristic to computer games, in particular the issue of interactivity.

The issue of video game violence has raised a number of concerns that are very similar to those related to media violence (Irwin and Gross, 1995). But also, and perhaps more importantly, the interactive or 'participatory' nature of video or computer games confers another dimension to the debate on media violence. Weizenbaum (1976), for example, argues that computer game players get used to 'distanciate' their actions from their results and become thereby 'psychically numb'. Other authors have developed the idea of 'participatory' violence in video games (Dominick, 1984; Schutte *et al.*, 1988; Cooper and Mackie, 1986; Mehrabian and Wixen, 1986; Ballard and West, 1996; Scott, 1995; Funk and Buchman, 1996a, 1996b).

Several research works have been dedicated to the study of the policy aspects of broadcasting and their applicability to new technologies (Eisenschitz, 1998; Kling *et al.*, 1999; Langford, 1996; MacMurdo, 1997; Ono and Aoki, 1998). There has been a growing concern over that the extent to which more recent communication

technology such as videotapes, cable television and the Internet may escape the regulatory control of the broadcasting authorities. In that sense, the development of Internet use in and outside the home has raised concerns regarding governments' abilities to regulate information and therefore ensure what they consider to be the moral welfare of their citizens of all ages. The existence of virtual communities can be seen as a threat to moral and social order insofar as they might enable geographically dispersed individuals to plan and carry out potentially malign or criminal actions in a more efficient and organised manner than if they were working in isolation (Lenk, 1997; Nguyen and Alexander, 1996; Chadwick, 1997). For example, Nguyen and Alexander (1996) argue that virtual communities created around the Internet on the basis of narrow and sometimes controversial interests that may threaten the principles of liberal democracies. One example of such dangers has been identified as being the lack of control national and international authorities may have over the creation and proliferation of Internet sites promoting racist, fascist or other extremist ideologies (Back *et al.*, 1996; Eatwell, 1996; Kinsella, 1994; Sharpe, 1999).

The content of material available on the Internet is not the only concern raised in the literature on home computer use. Computers are often seen as affecting the way the mind is shaped by imposing a particular type of logic. Such logic has been accused of being too limited and hindering human ability to tackle certain types of situations, in particular social and informal situations. It has also been argued that involvement with computers may foster the spread of a value system that is logical, quantifiable and deterministic (Henman, 1995), thereby reducing flexible thinking,

creative potential and vocabulary (Brod, 1984; Domozetov, 1989). Computer games, in particular, have been seen as affecting mental patterns, for example by subjectively distorting the notion of time and duration. Authors such as Myers (1992) have studied computer game players' experiences with time distortion. Also, it is commonly feared that computer use may reduce users' critical abilities vis-à-vis the information they access and cause a phenomenon of information overload (Forester, 1992).

These concerns over the issue of over-involvement with computers seem to date back to the very birth of computing. Silverstone (1994) recalls how such 'moral panics' are routinely associated with the introduction of new media. Computers have often been denounced for diminishing interpersonal or micro-social interaction (Henman, 1995). Alternatively, it has been argued that excessive computer use is merely a symptom of an already existing problem, in particular a wish or a need to escape social interaction. Shotton's (1989) study of computer addiction, for example, goes against the common belief that extreme computer use causes a lack of social interaction. She observed that most of 'dependent' computer users in her sample typically manifested a lack of social skills and interest in social relationships well before their first contact with computers. She argues that 'dependent' computer users display a potential for addiction and in a situation where computers were not available they would probably have developed some other kind of addiction. However, she also suggests that, for those who prefer to deal with the inanimate rather than humans, computer may become a source of

inspiration, excitement and intellectual stimulation, which may potentially be therapeutic.

It is interesting to see how those concerns have changed over the years. At a time when computing meant programming, there was talk about the 'compulsive programmer' (Weizenbaum, 1976). Subsequently the concern spread to other types of computer usage such as games or Internet chat. In most cases, the fear around computer addiction crystallises on a general feeling of uneasiness when humans become more absorbed in their interaction with a machine or in mediated communication with invisible interlocutors than in traditional face-to-face social activities. However, research does not only reflect concerns and anxieties with computer. A number of studies have investigated the link between computer and video game experience and various types of skills, such as scientific-technical discovery skills (Greenfield *et al.*, 1994), logic or rapidity in decision-making. Many authors have tried to demonstrate the educational and therapeutic uses of computer games, in particular regarding specific populations such as the chronically ill, the disabled of the elderly (Resnick and Sherer, 1994; Bosworth, 1994; Ell and Reardon, 1990; MacGuire, 1984). It is interesting to note that among the popular topics covered by the early literature on computers figures the potential use of computer for psychotherapy (O'Dell and Dickson, 1984; Murphy and Pardeck, 1988) and family therapy (Hunt, 1985).

The literature reviewed here is concerned with studying the effects of technology on mental and behavioural patterns and points towards the existence of anxieties regarding the short and long-term consequences of those effects. In particular, the

literature on computer use discusses the potential effects of technology on mental and behavioural patterns and points towards the existence of anxieties regarding the short and long-term consequences of those effects. This thesis does not intend to validate or invalidate the results of such research but aims to gain an understanding of respondents' own concerns and anxieties in relation to the home computer as they experience it. Also, as the literature reviewed here is mostly concerned with investigating those concerns and anxieties from the particular point of view of family life, this research investigates how issues such as morality and religious beliefs and involvement with computers may foster concerns and anxieties within the family and shape family relationships, in particular at the intergenerational level.

## Section 6: Developing and consolidating themes

This chapter has reviewed a wide literature concerned with the study of computers and other technologies in the home, and with the main sociological questions that surround the broader notion of family. Such a diverse literature has generated a large number of themes and issues. This section aims to pull together those various themes, organise them and present them in a form where they can be used in setting up a basis for the empirical part of the study. Those themes are then used as a basis for the formulation of research questions more directly related to the focus of this thesis. A number of new themes emerged from those research questions and will be used as a core element in the effort to build a framework described in Chapter Four.

***Resources and resource allocation***

This research examines broadly how the computer is integrated, physically and mentally, into an existing set of domestic arrangements and routines. An investigation of the spatial and temporal arrangements within the household will help interpret the status of the computer in the home and compare it with other technological and non-technological objects. A study of budget allocation will also be helpful in trying to identify the place held by the computer in family economic domestic practices. Those three 'household resources', namely time, space and budget are at the centre of this thesis's investigation of computer use in the home.

This leads to some questions regarding the process of resource allocation around the home computer. For example, different family members may have different approaches to a particular resource. It is to be expected that, in situations where a resource is or becomes scarce, some members of the family may attach a greater value to that resource. However, scarcity is not the only factor that plays a role in the process of resource allocation. Other elements such as individual or family values may be of similar or even greater importance. For example, spending time on the computer on Sundays may be regarded in some families as unacceptable, for a variety of reasons, including religion, habits or tradition. Similarly, the computer may be moved from one room to another, not because space is scarce in the former room, but because the presence of the computer clashes with the usage of the room or because it simply looks 'out of place'. There is therefore a need to study the

allocation of resources not only around the home computer but also in the broader context of family values and other family practices.

### *Time*

The notion of time is a recurrent theme in the literature on technology and technologies. Technologies are often designed and marketed as timesaving devices and the extent to which they fulfil this purpose is discussed at length in the business and management literature (Strong, 1997; Hofman and Rockart, 1994; Haekel and Nolan, 1993; Grohowski *et al.*, 1990; Kinsey and Ashman, 2000; Fischer and Byers, 1992). However, the question of whether and how the home computer contributes to saving time is not addressed in this research. In this thesis, we are more interested in exploring how computers integrate within the domestic sphere, not only 'spatially' but also 'temporally', how they 'fit' into domestic routines and rituals. Our investigation of the literature revealed that those themes have been discussed in depth throughout the media and communication literature. This section is therefore dedicated to presenting the main 'time-related' themes present in the literature around media and communication technologies.

Studies of radio and television scheduling have often emphasised how programmes are designed to 'fit' into the lifestyle of their audiences. For example Brunsdon (1981), Modledski (1982), and Spigel (1992) have observed that the scheduling of some television programmes such as soap operas was meant to 'fit' into the rhythm of women's work in the home. In particular, Spigel (1992) reports that daytime television scheduling in the 1950s was purposely repetitive and fragmented in order

to facilitate joint housework and television watching for women. Some studies of the radio point towards a similar trend: Scannell (1984) mentions that radio scheduling was meant to stitch itself "unobtrusively into the fabric of daily life, underpinning its routines" (page 333) and Moores (1988) describes how the scheduling of radio programmes was based on the 'imagined routines' of the their audience:

> ... schedules were intertwined with the mother's housework and child rearing, the man's work and leisure time, the children's school and bed time and the whole family's meal time and early evening relaxation (Moores, 1988, page 36).

Television and radio programmes have been found (Lull, 1990; Spigel, 1989; Moores, 1988) to play an important role in the shaping of individual and family routines:

> Television punctuates time and family activity such as mealtime, bedtime, chore time, homework periods, and a host of related activities and duties […]. Taking part in community projects, recreational activities or outside entertainment are directly influenced by the scheduling of television programs. (Lull, 1990, page 36).

The significance of radio and television programmes in the lives of their audiences goes well beyond their integration in the daily routines of listeners. Broadcasting has also been identified as a major component in the organisation of social life, in particular through its role as 'enacter' of calendar time. Scannell (1988) observes that the traditional calendar based on natural temporal cycles gradually lost its central role in the organisation of social life. This draining away of tradition, he argues, "contributes to the sense of meaninglessness and loss of identity which characterised the experience of modern social life" (page 169). Broadcasting, he

suggests, contributed to filling this gap by re-establishing a calendar based on seasons, religious rituals and sports events.

It can also be observed that the role of media technologies in the shaping of time goes beyond their function as 'routine facilitators'. In particular, the transmission of exceptional events through television or other 'live' media contributes to intensifying audiences' feelings that they are living 'exceptional times'. For example, Katz and Dayan (1985) and Dayan and Katz (1992) describe situations when live television lifts out a singular occasion such as man walking on the moon, a royal wedding or a pope visit, thereby transforming it into a historical turning point, or a point of 'catastrophic time'. Audiences are not passive viewers of such turning points and often participate actively to the making of 'catastrophic time'. Dayan and Katz (1992) provide examples of viewers who organise parties and in other way prepare to 'participate' on media events via television.

In this research, we will investigate how the notions of time and ritual inter-relate. We propose here to briefly review the literature on the ritual aspects of media and to leave further analysis of the notion of ritual for later (Chapter Six). We are aware that the word 'ritual' evokes strongly the notion of religion and religious practice. Parallels between the media and religion can be found in works such as that of Cazaneuve (1974), Gerbner (1977), or Goethals (1981). However, in this section, we will not investigate the religious aspects of the notion of ritual in depth and will limit our exploration to an overview of the inter-relation of the notions of ritual and media.

It has been argued that the media play a role in constituting public events as rituals (Becker, 1995, Da Matta, 1984). Journalism research often considers the routines and strategies used in constructing the news as 'rituals' or sets of 'rites' (Tuchman, 1978; Ross an Joslyn, 1988). Other media researchers extend the notion of 'ritual' to the daily lives of television viewers. Nordenstreng (1972), for example, considers the process of watching news on television as a 'mere ritual' where the act of viewing becomes more important than the content of the news. Indeed, early studies of television viewing routines have sometimes depicted ritualised viewing as inherently passive (Hawkins and Pingree, 1981) and considered it a 'lesser' form of viewing. Rubin (1984) outlines a traditional dichotomy in mass communication research between 'ritualised viewing' ("a more or less habitualised use of a medium to gratify diversionary needs or motive", page 69) on the one hand, and 'instrumental' viewing, which is more 'goal-oriented' and aims to gratify 'informational' needs or motives on the other hand.

Although the constitution of a media ritual is often understood as a purely 'domestic affair', specific to a household or a family, television programmes viewed at regular intervals by a large section of the public have frequently been conceptualised as rituals. Examples of such ritualised television events include the annual broadcasting of the Wizard of Oz on American television (Payne, 1989), the yearly Superbowl Sunday event (Goethals, 1981) and the Christmas Eve broadcasting of Disney cartoons on Swedish television (Becker, 1995). Other less regular television events such as political conventions (Goethals, 1981), election returns (Ross and Joslyn, 1988; Bohn, 1980), or one-off events such as the

Coronation in 1953 (Chaney, 1983) have been characterised as rituals, bringing together large sections of the public into a common experience.

This section has outlined some of the issues surrounding the notions of routine and rituals that can be found in the media and communication literature. In the next section, we propose to continue our exploration of the literature on media and communication technologies, this time with an emphasis on the notion of space.

***Public and private spheres***

In our investigation of the notion of space throughout the media studies literature, we found that many authors had raised the issues of public and private spheres when dealing with media and communication technologies in the home. This section therefore starts with a brief outline of the main themes related to the concepts of public and private that pervade the media studies literature, then introduces some ideas regarding the applicability of those concepts to our research.

The discussion regarding the public/private duality has emerged throughout various research works within the fields of domestic, media, communication and computer technologies (Kinsman, 1987; Jouet, 1988; Spigel, 1992; Silverstone, 1993a, 1993b; Mukerji and Simon, 1998). Many technologies are seen as mediating between private and public life. In particular, communication technologies typically connect the interior of the home with the outside world. Moores (1988), for example, in his analysis of the developments of the radio, outlines a definite shift from the public to the private arena. At a time when owning a wireless was more the exception than the norm, listening to the radio was much more of a 'public

activity' than it is now. Going to listen to the radio involved leaving the house and assemble with others at a neighbour's house or in an even more public place. Moores (1988) notices that the bulk and "unattractive mechanical appearance" (page 29) of the early radio set, combined with the health hazard related to the corrosive acid of the batteries contributed to making it an "unruly guest" (page 23) and an "obtrusive presence in the geography of domestic space" (page 23). Nevertheless, the radio became gradually more integrated within family life, thereby contributing to the shift of balance between public and private spheres. Moores (1988) argues that the increasingly dominant presence of media technologies within the home has contributed to making the home a more attractive environment for leisure, and therefore induced what Donzelot (1980) referred to as "the withdrawal to interior space" (page 93). The two early surveys cited by Moores (1988), Jennings and Gill's *Broadcasting in Everyday Life* (1939) and Rowntree's *Poverty and Progress* (1941), present the radio as:

> part of a general move away from the collective occupation of exterior space towards a family grouping which had withdrawn into interior space (page 25).

When trying to understand the relationship between private and public spheres, the notion of meaning seems to play a crucial role. This point has been discussed in depth by media studies researchers (Morley, 1980; Ang, 1992; Fenton, 1995; Pasquier, 1996). It is the same message that is being broadcast and that reaches the members of the audience; however, this same message might have a very different meaning for the broadcaster and for each particular viewer. Most television studies accept the fact that the meaning of a message is a creation (or 'construction') of the

viewer (Morley, 1980; Ang, 1992) and that, in order to construct this meaning, viewers use cognitive patterns that have themselves been shaped by their social and cultural environment, including the family.

This thesis argues that the home computer plays an equally important role in the changing meaning of the notions of 'public' and 'private'. On the one hand, the presence of a computer in the home may encourage or facilitate the introduction of 'public' activities within the private sphere of the home. Teleworking or work carried out from home using the home computer is one example of such phenomenon. Another element of this 'public'-'private' convergence may be found in the introduction of 'public' information into the home via the Internet, e-mail or CD-ROMs. In particular, the so-called 'virtual communities' created through the use of Internet mailing lists and chatrooms may transcend not only national borders but also and perhaps more importantly, the boundaries between the public and the private domains.

This discussion sheds light on the need to investigate the various types of activities performed with or around the home computer in order to appreciate their role in the public/private divide or convergence. The perception of various family activities as either public or private raises the question of whether the home computer participates in shaping family activities towards a more 'public' or a more 'private' direction. However, this thesis aspired to go beyond the duality of public and private and to concentrate more specifically on the meaning of the word 'domestic'. A rough attempt at categorising the various activities undertaken within the family in the domestic sphere may be useful for the purpose of collecting data about the

family use of home computers. Chapter Four will explain in more detail how family activities within the domestic sphere might be divided in four categories, namely work, education, leisure and family duties.

### *The notion of displacement*

The media studies tradition prefers to refer to 'technologies' whereas the information systems discipline almost always opts for the singular form. Media research puts a much greater emphasis on the existence of multiple types of technology in the household and on the way they are used within the family. From that perspective, it could be expected that the introduction of a new technology in the household would 'displace' other technological objects already present in the household. This 'displacement' might take the form of geographical 'displacement' (one technological object is moved to make room for another) or time 'displacement' (time formerly dedicated to the use of one technology is spent on using the new technology). However, research suggests that the arrival of new technology within the household often results in a greater diversity in technology use rather than in a simple shift from 'old' to 'new' technology (Suzuki *et al.*, 1997; Robinson *et al.*, 1997). This dissertation proposes to study the concept of displacement in relation to the introduction of one or more computers within the home.

This notion of 'displacement' has a double relevance to the quest of this dissertation. First, the home computer can be seen as 'another technology' in the household and therefore to play a role in displacing (or being displaced by) other

technologies. Second, it must be remembered the computer is a complex and multifunctional object, arguably more than any other technological object within the household. The presence of multiple functions within the computer sheds a new light on the notion of 'displacement'. Different software packages allow for different tasks to be performed and the same software may be the host of very different activities. For example, a word-processor may be used for schoolwork, job-related activities, or personal correspondence. Therefore, one can see that the plurality of uses allows for a study of 'displacement' not only between the computer and other technologies but also within the realm of computer usage itself.

***Family budget and household economics***

When reviewing the literature on financial issues in a family context, we observed that much of the literature approaches the issue from a 'gendered' perspective. In particular, as suggested by Laurie (1991) research concerned with resource allocation within the household tends to focus on the 'gendered' relations of power and authority within the conjugal unit. For example a number of sociological research works on the topic (Pahl, 1980, 1983, 1988, 1989, 1990; Morris, 1988, 1989, 1990) have consisted in identifying indications of power within a marital relationship by tracing the flow and distribution of money within the household. Similar concerns can be found amongst social policy researchers who criticised policies that assume equal access to family benefits (Glendinning and Millar, 1987; Brannen and Moss, 1987). One could cite a number of other research works (Layard *et al.*, 1978; Land, 1983; Rainwater, 1984; Delphy and Leonard, 1986;

Wilson, 1987) that question whether "women get a fair return for what they put in the household" (Rose and Laurie, 1991, page 4).

Although the issue of gender has been noted as prominent throughout the literature on family finance or family economics, a number of other issues have been discussed in the literature. Authors such as Cheal (1987) have dealt with the issue of intergenerational transfers of financial resources in particular in the case of adult children receiving family support from their parents.

***Conflict and conflict resolution***

We have seen earlier in this chapter that the notion of conflict is of crucial importance to theorists of the family and in particular to feminist thinkers. In this thesis, we acknowledge the need to recognise the existence of conflicts within the family in order to understand the dynamics of interpersonal relationships in the domestic sphere. We argue that the study of family resources and of their allocations may provide valuable insights when trying to understand the notion of family conflict around the home computer. First, an examination of the patterns of computer use may uncover disparities between family members regarding the allocation of family resources. Such disparities may have important repercussions onto family relationships, especially where they involve a rare or particularly valued resource within the household. It is also worth comparing the allocation of resources around the computer and around other domestic objects or activities.

This chapter has shown how the literature outlines the issue of conflict within the family and has highlighted that different individuals use home technologies in

different ways and attribute different meanings to them. Sections 2 and 3 have described how the sociological literature on the family outlines, among others, the issue of conflict within the family. Section 5 has shown that the use of home computers by family members typically brings to light or accentuates differences in terms of behaviour or attitude and this may generate conflicts within the family.

Throughout the rest of this dissertation, the notion of family conflict is investigated from a 'domestic computer' perspective. This research uses empirical data to explore the issues of tension, conflict, negotiation and conflict resolution around the home computer. An investigation of family and individual experiences with computer technology in the home is expected to help highlight the various values, beliefs, behaviour and lifestyle displayed within the family. It can be predicted that differences may be found not only in home computer use patterns but also in the various meanings attributed to home technology in general and the home computer in particular. Those differences may be due to differences in background, technology awareness, as well as gender and age.

Conflict around the home computer pervades a number of the issues we have discussed. First, many conflict situations arise from the existence of a disagreement over the terms of the allocation of family resources including time, space and budget. Second, conflicting views about the use of technology may play a vital role in the status of the home as a private, public or hybrid sphere. Finally, interpersonal conflicts may cause concerns and such concerns may lead to the introduction of new rules, which in turn may generate more tension or conflict.

Intuitively, the existence of competing perceptions of what a home computer means and how it is to be used can be expected to become a source of tension and conflict within the household. In order to test this intuition, it appears necessary to analyse the effect of such differences on family relationships. Individual responses to the existence of differences within the family may range from indifference to covert tension or open conflict. However, conflictual situations rarely remain static for long periods of time. In many cases, an effort to achieve compromise or to win support translates into negotiations that may lead to a variety of outcomes. Therefore this research is not limited to the description of family conflicts but seeks to uncover the existence of negotiations aimed at resolving such conflicts.

The issue of conflict and tensions within the family raises a number of questions regarding the causes, nature and consequences of such conflicts. The causes of disagreement over the home computer may form a very intricate web of elements related to the broader notions of meaning and patterns of use. The symptoms of such disagreements may also range from stifled tension to full-blown family conflicts. They may involve more than two family members, which increases the complexity of the situation. The techniques used in order to resolve such conflicts and the outcome of such negotiations are also worth investigating when studying home computers in the family. The literature discussed in this chapter and the research questions cited above allow for the elicitation of two new themes: the first theme embraces the various intergenerational relationships within the family whereas the second consists in gender or 'gendered' relationships within the family.

Finally, the general anxieties and concerns surrounding the use of information technology in the home may translate at the family level in a variety of fashions and generate a diverse array of opinions and responses. Such anxieties may be felt more or less intensely, and may be displayed more or less explicitly. They may also participate to the creation of further tensions or conflicts within the household, which may in turn result in the introduction of new formal rules or in the shifting of existing norms, habits and daily routines.

## Section 7: Summary and conclusion

The categories of themes from the literature, the research questions that they generated and the related themes that were extracted from such questions are summarised in Table 2.2.

| Categories of themes from the literature | Research questions | Related themes |
|---|---|---|
| Resources | What resources are used and by whom?<br><br>What resources are valued most and by whom?<br><br>How does the allocation of resources to the computer or computer use compare with other objects or activities? | Time<br><br>Space<br><br>Budget |
| Public and private spheres | What activities are considered 'home activities' and why?<br><br>How does the computer participate into the shaping of those activities? | Work<br><br>Education<br><br>Leisure<br><br>Family duties |
| Anxieties and concerns | What concerns do computers raise within the family?<br><br>How do family members deal with those concerns? | Norms<br><br>Rules |
| Conflict and tension | What are the elements of disagreement over the use or meaning of the home computer?<br><br>Do such disagreements create open conflicts or underlying tension within the family?<br><br>Who is involved in such conflicts?<br><br>How are such conflicts negotiated? | Intergenerational relationships<br><br>Gendered relationships |

Table 2.2: Overview of the main themes from the literature and related research questions.

This chapter has surveyed a wide range of literature across a diversity of social science fields and exposed a number of key debates and concepts that have been used to explore technologies within the home, the family and the domestic sphere. The chapter has also reviewed models and interpretations of the family itself. On the basis of this review, the next chapter turns to consider issues of undertaking research on and within the family. Chapter Three therefore concentrates on demonstrating how an interpretive approach becomes the ideal instrument in achieving the research goals of this thesis.

# CHAPTER THREE: METHODOLOGY AND METHOD

To generalize is to be an idiot

William Blake (1757 – 1827)

## Section 1: Introduction

This chapter discusses the problems and issues associated with finding an appropriate methodology for undertaking this research, and presents the methods chosen for the gathering and analysis of data throughout the dissertation. It describes how working towards an understanding of the broader methodological issues raised by researchers both within and outside the information systems field allowed us to make an informed choice for a particular research approach and research techniques.

This thesis argues for the adoption of an interpretive approach when carrying out research about home computers and the family. Section 2 outlines the motivation behind our decision to adopt an interpretive approach and describes the process of choosing a research method in accordance with such an approach. As mentioned in Chapter One, our interest lies with learning how home computers are used, shared, negotiated and thought of within the family, what meanings they are invested with, and how they are embedded in the daily life of families. The ambition of this research is therefore to produce a rich account of computer usage within the

specific social context of the family and the domestic sphere, and this is achieved through the use of ethnographic techniques, in particular in-depth interviews with families.

Section 3 discusses the practical issues associated with conducting this research within the interpretive framework. Such issues include broad questions such as 'what constitutes a family?' and 'what is meant by 'context' when studying domestic life?', as well as more specific questions related to the problems of gaining access to families, keeping the conversation focused and involving all members of the family, including children. This section also provides a series of critical reflections on how the data collected may have been socially constructed through the interaction between the researcher and the respondents.

Section 4 concludes this chapter by summarising the main points developed in Sections 2 and 3 and highlights their contributions to the rest of the dissertation.

## Section 2: Methodology

### *Overview*

The purpose of this research is to investigate, describe and analyse the diversity and richness present in the interaction between the family and the home computer. In order to comprehend real-life situations, data is gathered in the form of respondents' accounts of their own experiences. This is likely to lead to a variety of potentially conflicting interpretations of the same phenomenon and thereby adds to the imprecision of the situation. However, we will argue that there is a need to treat

those conflicts in interpretation and imprecision not as obstacles to the research process but as an opportunity to widen our understanding of the real-life situations we are investigating. We believe that recognising the existence of diverging viewpoints and analysing the contradictions emanating from them will provide invaluable insights into the reality of family life.

The literature in the information systems field and in other areas of the social sciences suggests that researchers who embark on interpretive research projects need to be acutely aware of the various levels of interpretation involved in conducting such research. In particular, this thesis follows Geertz's (1973) suggestion that we need to acknowledge the existence of two levels of interpretation when conducting research in human settings. Data collected throughout an anthropological study, he explains, is the result of two levels of interpretation or 'construction' - "our own constructions of other people's constructions of what they and their compatriots are up to" (page 9). This idea has found resonance in various areas of the social sciences where research is conducted within an interpretive framework. For example, Gray (1992), in her study of the VCR in the home, describes her interview data as:

> ... subjected to a double interpretation: the first is the interpretation which the women bring to their own experience, and the one which they share with me, whilst the second is the interpretation I make of what they say (page 33).

Walsham (1993) refers to the same idea when he identifies two degrees of 'construction' when researching information systems in organisations - the

interviewee's constructions (that he calls 'first-order data') and the researcher's constructions ('second-order concepts').

### '*Traditional*' *and* '*new*' *methodological approaches: an overview*

Over the last two decades – and, in particular, since the IFIP WG 8.2 Colloquium "Information Systems Research, a Doubtful Science" held in 1984 in Manchester (Mumford *et al.*, 1985) - a lively and challenging debate has emerged in information systems over the appropriateness of traditional (positivist) and non-traditional (interpretive, post-positivist, post modern, critical) research approaches and, to a lesser extent, over the possibilities to combine them (Lee, 1991; Gable 1994). Throughout this debate and in the mainstream literature, the balance of arguments can be seen as shifting towards the new approaches and many journals in the information systems field now offer a balance of research. It is beyond the scope of this dissertation to provide an extensive review of the literature on methodology or to attempt to retrace the various arguments and perspectives put forward in the debate. For more in-depth studies of this debate, we would suggest a number of references such as Banville and Landry (1989), Galliers (1992), Galliers and Land (1987), Hirschheim (1985), Mumford *et al.* (1985), Nissen *et al.* (1991) and Orlikowski and Baroudi (1991). Rather, in this section, we propose to give a rapid overview of the main characteristics of positivism (the 'traditional' approach) before examining the interpretive approach, and explore its relevance to this thesis.

*Positivism*

Today, the term 'positivism' evokes a number of notions chiefly but not exclusively related to the hard or natural sciences and the applicability of positivism to various areas of the social sciences. Hammersley and Atkinson (1995) provide a useful overview of the meaning of the term 'positivism' in today's academic world. They describe positivism as relying on a set of three fundamental assumptions. First, positivist research follows a particular logic, that of the experiment, which is "taken to be the defining feature of science" (Hammersley and Atkinson, 1995, page 4). In that sense, social research using a positivist approach is based on the premises of physical science.

The second assumption consists in a belief in the universality of laws and generalizability of results. Positivist thinkers seek to explain events by the way of 'universal' laws that they see as independent of time and context. If findings need to be generalizable, there is a need to ensure the stability of measurement across observers and for data collection procedures to be standardised. Lastly, positivist researchers assume that observers can and should be totally neutral in their investigation. They also believe that objective truth does exist and is the ultimate goal of research. "It is argued that scientific theories must be founded upon or tested by appeal to, descriptions that simply correspond to the state of the world, involving no theoretical assumptions and thus being beyond doubt" (Hammersley and Atkinson, 1995, page 4). This last assumption brings about another set of postulates, namely that facts and values are two distinct domains and that scientific

knowledge is to consist only of facts (Archer, 1988). It is therefore presumed that, for the scientific mind to operate optimally, that is to say to develop a detached and objective view of its subject of investigation, it must be freed from any disturbing elements such as passion or even values.

This belief in the existence of objective truth has major implications in terms of research methods. The last assumption presented above explains how the testing of theories has become the main research methods within the positivist perspective. For positivists, "the most important feature of scientific theories is that they are open to and are subjected to test" (Hammersley and Atkinson, 1995, page 5). Such tests are used to validate or reject a particular hypothesis and may be repeated at any time in the future in similar circumstances. Following the 'universality of laws' premise, the testing of hypotheses allows for theories to be developed and established as a 'truth'.

This brief outline of the tenets of positivism can help us understand how research in the information systems field has come to turn away from positivism and seek and develop research approaches more adapted to the changing needs of the field. In particular, the change in our understanding of information systems, for example as a group phenomenon, situated in a social organisation, has fed the need for approaches that look beyond positivism. In the next paragraphs, we will see that this search for an alternative to positivism has led to the development of a range of interpretive research techniques and approaches.

*Beyond positivism*

The major argument against the use of positivism in the social science disciplines is that "social sciences are not free from inconsistencies and incompleteness" (Achterberg *et al.*, 1991, page 284). We propose to examine this idea more particularly in the case of information systems research.

It is important at this stage to remember that interpretivism is by no means the only alternative to positivism. The approaches such as critical research, post-positivism or post-modernism are at least as significant as interpretivism in providing alternative means of understanding the world around us. In this section, however, we choose to concentrate more particularly on the interpretive approach, which is more closely related to the philosophical standpoint of this thesis. We propose to introduce briefly the historical background of the use of interpretivism in the information systems field before outlining the relevance of interpretive concerns for this research.

Over the last two decades, information systems researchers have become increasingly aware of the notion that the study of computer-based information systems involves primarily (if not exclusively) the study of the people who design, use and manage those systems. As Cornford and Smithson (1996) observe, the phrase 'information systems are social systems' - which forms the basis of the information systems textbook of Angell and Smithson (1991) - can be traced back at least as far as the early 1980s (Land and Hirschheim, 1983). But the roots of such a notion can be found in much earlier work, in particular, the studies of the coal

mining industry undertaken at the Tavistock Institute in London in the tradition of socio-technical research (Trist and Bamforth, 1951; Emery and Trist, 1960). The socio-technical ideas illustrated in those studies – in particular the need to take into account the existing working environment and social systems before introducing any new technology – has found resonance amongst many information systems thinkers (Mumford and Weir, 1979; Land and Hirschheim, 1983; Mumford 1995; Davis *et al.*, 1992). The acknowledgement that 'information systems are social systems' lies at the heart of arguments in favour of adopting an interpretive approach when studying information systems. If the principal subject of investigation is human action and human behaviour, there is a need to integrate elements that are inherent to human situations such as interpretation, context and meaning.

Various information systems researchers (Boland and Day, 1989; Checkland, 1981; Galliers and Land, 1987; Orlikowski and Robey, 1991; Orlikowski and Baroudi, 1991; Walsham, 1993, 1995) have emphasised the need to study the social contexts within which technology is designed, implemented and used, in order to understand the subjective meanings that human actors ascribe to it. This emphasis on social context is central to interpretivist thinking and allows researchers to benefit from a more holistic an integrative view of the situation they study. In particular, interpretive research has helped us understand how the same technological tools may have different social outcomes in different contexts (Barley, 1986; Bijker *et al.*, 1987; Johnson and Rice, 1987; March and Sproull, 1990; Orlikowski, 1993).

Information systems researchers from the interpretive tradition also emphasise the need to recognise the existence of a multiplicity of complex and intertwined conceptual structures in organisations. Their research suggests that a positivist approach, because it involves a quest for universal laws, might lead to researchers overlooking such contextual factors. Many have therefore called into question the applicability of positivist approaches to the information systems discipline and emphasised the need for alternative views (Galliers and Land, 1987; Harvey and Myers, 1995; Rathswohl, 1991; Walsham, 1993, 1995). For example, Galliers and Land (1987) identified two major shortcomings of the scientific paradigm when researching social phenomena. First, the number of factors that can be studied under laboratory conditions is limited. Second, there are numerous factors whose value cannot be easily assessed. They saw traditional approaches as inappropriate for information systems research because they required "a preciseness of measurement that is often not sustainable" (page 900) and because they tended to ignore those variables that are relevant but not easily measured.

From a methodological point of view, this thesis situates itself in direct line with other interpretive information systems research works. Rather than testing a hypothesis or predefining exclusive dependent or independent variables, this research focuses on eliciting the full complexity of families' sense-making of the home computer and revealing it through a rich description of the researcher's interpretation.

In this work we do not only acknowledge that, like any academic investigation of social reality, a study of computers in the domestic sphere will necessarily be

historically and culturally specific. We also contend that it is precisely this historical and cultural 'situatedness' that makes the research interesting.

In this thesis, we work towards an understanding of computers in the domestic sphere through the meaning that families assign to them. In order to highlight the differences in interpretation between respondents, this dissertation presents the various accounts of real-life situations gathered through interviews.

We then move on to describe the process of finding a technique for developing an interpretive stance.

### *Ethnography and ethnographic interviewing*

#### *Why ethnography?*

This section explores the practical issues related to undertaking the interpretivist research required for this dissertation. It sets out the arguments for choosing an ethnographic technique as the basic tools for the research work described in this thesis and examines how the research presented in this dissertation benefits from an ethnographic approach.

The meaning of the word 'ethnography' is subject to some contention. Although most authors would refer to ethnography as an epistemic position in accordance with an interpretivist philosophy (Harvey and Myers, 1995; Myers, 1997; Prasad, 1997), there does not seem to be much harmony beyond that general accord. For example, the very boundaries around the concept of ethnography have often been unclear and it has sometimes been significantly difficult to distinguish between

ethnography and other of qualitative social science research methods (Hammersley and Atkinson, 1995).

In this thesis, we adopt Geertz's (1973) understanding of ethnography as an approach that may be used to achieve two goals. Firstly, it is meant to allow researchers to gather an understanding of a situation foreign to them. Secondly, it helps them communicate this understanding to readers by way of reports presenting in-depth descriptions of what has been seen. In order to achieve this double purpose, ethnographers typically use techniques such as participant observation and unstructured conversational interviews with members of the culture under investigation (Burgess, 1984). However, we must recognise that the desire for reaching a complete and accurate knowledge of 'the other' is, as Moores puts it "an unattainable fantasy" (page 3) and that no ethnographic account will provide more than, at best, a 'partial truth' (Atkinson, 1990; Clifford and Marcus, 1986).

Being a complex structure with diverging interests and goals, the family is a particularly appropriate terrain for such 'thick' description. The family can be seen as interacting constantly with other human structures of various kinds. For example, a family is usually part of larger human structures that may have been built out of geographical closeness (a neighbourhood, a nation) or out of mutual interest or belief (religious communities). In addition, individual family members may belong to other types of organisations that may influence their judgement and decisions. Such organisations include obvious elements such as the company one works for, but may also include associations such as trade unions and professional bodies to sports clubs or religious groups. In order to understand conflicts and dynamic

relationships within the family, it is helpful to investigate to what extent different family members belong to or draw on aspects of their life beyond the home which sustain conflicting interests or goals.

The term 'ethnography' is traditionally associated with the discipline of anthropology and often evokes images of researchers 'going native' often in some distant and 'exotic' place. Indeed, the 'pioneers' of modern anthropological ethnography typically spent extended periods of time within a foreign culture (Malinowski, 1922; Evans-Pritchard, 1940). Although ethnography *per se* might refer to a very particular type of work requiring 'immersion' in a 'foreign' culture, ethnographic techniques may be (and have been) used in a wide range of social science disciplines and in a variety of research settings. Examples of research based or inspired by ethnographic enquiry can be found in areas as diverse as education (Angus, 1986; Masemann, 1982; Young, 1981), health (Christian *et al.*, 1998; Martens, 1998), social work (Sugg and Inui, 1992; Wu *et al.*, 1997), population studies (Hammel and Wachtel, 1996), and media and cultural studies (Ang, 1991; Hobson, 1980; Liebes and Livingstone, 1994; Morley, 1986). The width of this spectrum and the apparent 'unrelatedness' of the various research works that use or are inspired by ethnography may at first appear baffling. As Moores (1993) observed, referring to the works of Morley (1986) and Malinowski (1922):

> ... sessions spent talking about television in the sitting rooms of eighteen south London homes... are evidently quite different from two years living amongst the Trobiand Islanders... (page 4)

But if we look beyond the first screen of differences, we see that those works have actually a lot in common. They both investigate strange or foreign human situations and human action and attempt to capture their meaning by placing them within a broader context and providing an account of human behaviour to a remote reader. This is then achieved by articulating accounts of how those actions and situations are socially constructed, interpreted and imagined.

It is useful to draw a brief outline of the uses of ethnography within the information systems field. As the focus of 'computer-related research' shifted from technological to organisational questions, there has been a growing awareness of the need to understand the nature of processes taking place around and through adoption of ICTs, as well as the driving social and organisational context. Numerous information systems researchers have acknowledged the need for historical and contextual factors to be taken into account when studying ICTs in or as social systems (Checkland, 1981; Avison *et al.*, 1993; Davies, 1991; Galliers and Land, 1987; Hirschheim and Newman, 1991; Kaplan and Maxwell, 1994; Lee *et al.*, 1997; Ngwenyama *et al.*, 1999; Nissen *et al.*, 1991; Orlikowski and Baroudi, 1991; Walsham, 1995). Such research points to the widespread feeling that a positivist approach, because it involves a quest for universal laws, might lead to researchers overlooking or underplaying such contextual factors. Many have therefore called into question the applicability of positivist approaches to the information systems discipline and emphasised the need for alternative views (Harvey and Myers, 1995; Rathswohl, 1991; Walsham, 1993, 1995).

This has led information systems researchers such as Avison and Myers (1995) to investigate the potential benefits of using anthropology as a source discipline for information systems research. Among the various insights that the discipline of anthropology may provide for information systems research, ethnography figures at a prominent place. Over the last decade, the potential contribution (and limitations) of ethnography as a basis of information systems research has become a popular topic of discussion amongst the information systems community (Harvey and Myers, 1995; Myers, 1997; Myers, 1999; Prasad, 1997; Walsham, 1995). The potential of ethnography in designing, developing and managing information systems has been an increasingly popular focus of research in the information systems field (Boland and Day, 1989; Davies, 1991; Davies and Nielsen, 1992; Hughes *et al.*, 1992; Jones and Walsham, 1992; Nyce and Löwgren, 1995; Orlikowski, 1991a, 1993; Orlikowski and Robey, 1991; Randall *et al.*, 1994; Simonsen and Kensing, 1997). In particular, the Computer-Supported Cooperative Work literature offers some prominent examples of the use of ethnographic methods of the purpose of analysing and designing systems (Bentley *et al.*, 1992; Sommerville *et al.*, 1994). Other ethnography work, such as Suchman's (1987) investigation of human-machine communication, Randall *et al.*'s (1999) study of legacy systems or Zuboff's case studies (1988), focuses more particularly on the users of information systems.

The research described in this thesis is not directly dedicated to the study of design or development of systems as understood in traditional information systems research. However, this work investigates the use and usage of computers and, in

that sense, has much in common with other studies of users, such as Zuboff's (1988), Suchman's (1987) and Randall *et al.*'s (1999). Like those studies, this research puts the emphasis on listening and contextualising people's experiences around technology and eschews plans and projects in favour of a careful attention to *la vie quotidienne.*

*What type of ethnography?*

The next stage in the research design is the choice of research methods that are consistent with the approach identified earlier in this chapter. This section first examines the benefits of brief ethnography for the purpose of studying households, then the suitability of in-depth interviewing as an ethnographic technique.

In our study of the literature, we found that some of the ideas presented in Wengraf's (1990) work were of particular relevance to this research. Wengraf refers to two types of ethnographies, namely classical ethnography and brief ethnography. Classical ethnography is presented as requiring "a field experience typically of a year or several years" (Wengraf, 1990, page 129) whereas brief ethnography takes up a comparatively shorter period of time. We argue that brief ethnography is particularly appropriate for the study of the domestic sphere for several reasons. First, the home is a very private space and the amount of time a stranger is allowed to occupy this space is typically limited to a few hours, at most. Second, even if a family did agree to have a researcher staying in the home and observing for a longer period of time, it is to be expected that this would cause a considerable amount of disruption within the household. However, the problems

raised by the time limitations may be partly compensated through the use of a range of methods including observations of the family setting (domestic objects and practices) and interviews with those involved in such a setting.

It is interesting to see that the concept of 'brief ethnography' is rarely mentioned as such in the literature. However, when reviewing the literature, especially that dealing with the world of media audiences, we observe that many research works have a brief ethnography feel to them even if they are designated differently, sometimes as 'in-depth interviews' or as 'ethnographic-style interviews', for example.

*In-depth interviewing*

Lull (1990) identifies several possible ethnographic methods and evaluates their respective feasibility and appropriateness within the context of audience research. He proposes a first, 'naturalistic', research method consisting in placing cameras and microphones around the television in order to gain access to audience members' conversations and viewing behaviour. Although such a method allows for a precise documentation of actual amounts of television viewing, it fails to provide insights into the "uses, gratifications or meanings that media hold for their audience" (Lull, 1990, page 31). Lull therefore calls for a more elaborate method of ethnography organised around three elements: participant observation, the use of informants and in-depth interviewing. The purpose of such a combination of methods is to allow the researcher to "grasp as completely as possible with minimal disturbance the 'native's perspective' on relevant communicative and sociocultural

matters indigenous to him or her" (page 31). Those methods require that researchers enter the home (the 'natural domain') of their subjects but Lull insists that such an intrusion "need not severely disrupt the natural behaviour of the family unit" (page 31).

The belief that the presence of investigators in the habitat of their subjects only brings about minimal disturbances in everyday routines is questionable. First, because we cannot really measure how much a researcher actually interferes with the researched environment (as Moores (1993) suggests, "precise degrees of disruption to the people and places under ethnographic surveillance are debatable" (page 33)). Second, because wherever the researcher's presence is felt, there is inevitably some amount of 'disruption' of or 'influence' onto the environment. What is considered by Lull to be a 'naturalistic' mode of inquiry could therefore also be seen as 'artificial' because it involves a certain amount of intervention into the life of the subjects of the study.

Among the various ethnographic techniques available to us, we identified participant observation of actual behaviour and collection of respondents' accounts of behaviour through interviews as the most 'promising' methods for this research. We have to acknowledge that participant observation might have provided us with a broader, more extended 'feel' for the families investigated. As Hammersley and Atkinson (1995) recall, "attitudes and activities often vary over time in ways that are highly significant for social theory" (page 46). Our research could perhaps have benefited from a more extended "coverage of the various divisions" (page 48) of family life. However, we decided against this technique, mainly for practical

reasons. The technique of participant observation, although it has been widely used in information systems research, poses significant difficulties when applied to the study of family life, due to the size and nature of the organisation under scrutiny. Whereas a participant observer within a large business structure may be relatively easily accepted and integrated, the family has remained a very closed environment, allowing little or no scope for observation in a natural setting. Moreover, the introduction of a new person in a household even if the family has, in principle, accepted it, is likely to represent a very artificial setting and would probably cause significant disruptions in family routines.

The ethnographic interview has been defined as "the most informal, conversational and spontaneous form of interview" (Lindlof, 1995, page 170). The informality of the interviewing process may be somewhat confusing for some interviewees, who assume that there is no value in a casual conversation and try to get some focus from the interviewer. However, ethnographic interviewing has been identified as one of the most productive ways to elicit talk (Willis, 1980) and has been used in prominent research work on radio (Moores, 1988) and television audiences (Hobson, 1982, Morley, 1986, 1992), and romance readership (Radway, 1987).

Reflecting on the relative usefulness of various television research techniques, Morley affirms that:

> Observing behaviour always leaves open the question of interpretation. I may be observed to be sitting, staring at the television screen, but this behaviour would be equally compatible with total fascination or total boredom on my part - and the distinction will not necessarily be readily accessible from observed behavioural clues (page 181).

In his defence of interviewing as a preferred method for the purpose of understanding television audiences, he argues that interviews bring a new dimension to the picture that may be gathered from mere observation. Not only do they give access to the respondents' conscious opinion, but they also provide an insight into their own construction of the world that surrounds them (through an analysis of linguistic terms and categories).

It can be argued that the concerns raised by Morley (1992) about the incompleteness of any account based solely on observations of television viewing are less relevant to the study of computer usage. In particular, observing a user interacting with a computer may allow the researcher to formulate some hypotheses about the user's purposes and motives in carrying on one task or another. Nevertheless, those hypotheses may need to be confirmed using specific questions to the user. Therefore, the need for conversation and interaction remains a major issue, even in settings where actions might appear to adequately reveal intentions and motives.

The question of how one 'does interpretation' remains. Entering the domestic sphere, gaining familiarity with families' routines and habits and hopes and concerns, and observing family situations 'from the inside' are all part of the process of interpretation. But 'doing interpretation' requires more than gathering data or information through qualitative techniques. It also requires us to challenge our assumptions, our prejudices or pre-understandings in order to uncover original, 'fresh' insights from the observed situations. Indeed, Myers (1999) considers that the question of whether a particular piece of research offers rich insights is best

answered by considering whether or not it contradicts conventional wisdom. Examples of such 'assumption-breaking' work may be found in the information systems literature (Orlikowski, 1991a; Hughes *et al.*, 1992).

However, we also need to keep in mind that the process of interpretive research is not linear (departing from a set of assumptions, then breaking them in order to eventually build a new 'model') but rather a constantly evolving operation. In the same way as respondents constantly appropriate and re-appropriate ideas about their lives, the researcher also goes through a process of appropriation and re-appropriation of ideas and understanding about the respondents' accounts (as described in Klein and Myers (1996) in their 'fundamental principle of the hermeneutic circle'). This thesis dedicates a relatively large place to describing this process of discovery and re-discovery of ideas or 'themes' throughout the research. In particular, Chapter Four will describe the various stages this research has been through in order to extract and organise relevant themes from the literature review and incorporate them with my own intuitions and interpretations and Chapter Six represents another cycle as the collected data is analysed.

The above discussion suggests that, ethnographic-style interviews (or as Wengraf (1990) puts it, 'brief ethnographies') are the most practical alternative for the purpose of this research, allowing us to gather information about what cannot be directly observed, and allowing for the main actors to express in their own words how they have experienced various events. This leads us to the next section, where the practicalities of undertaking ethnographic-style interviews are discussed.

## Section 3: Practicalities

This section deals with the practical aspects of ethnographic-style interviewing within the domestic sphere. Throughout this section, we will provide examples and illustrations of the pitfalls that surround the researcher that engages in interpretive research. Mostly, we will see that the real, social world of families and of the domestic sphere is a very messy place. It is a world where actions and situations are constantly constructed and reconstructed, and which cannot be understood in terms of simple causal relationships. To quote Hammersley and Atkinson (1995), "human actions are based upon, or infused by, social meaning: that is, by intentions, motives, beliefs, rules and values" (page 7). Attempting to make sense of such social complexity is therefore a very complex and risky venture.

### *Families and their context*

*What constitutes a family?*

One of the first practical problems faced when planning the conduct of interviews resides in the very process of demarcating the concept of family. It is most remarkable to see that, in the case of the family, we often take a large number of assumptions or prejudices for granted and, presumably, omit to challenge them because they are so closely embedded into our conception of everyday life. For example, there is a common misconception among the general public that the nuclear family constitutes the 'average' contemporary family:

> Only 32 per cent of household units consist of families in the sense of containing adults with children, and while this is still the single largest household unit

> statistically, it remains the case that around two-thirds of households contain social groups (or individuals) that do not fit the model of the nuclear family. Lone-parent families are rapidly growing in number. So too is the number of households of only one individual. (Silverstone, 1994, page 33)

Given such diversity, it is doubtful that even an in-depth study of the family could provide us with an 'average' or 'benchmark' family.

It is clear that the vagueness of the notion of family also has practical implications when undertaking empirical work with families. In particular, the task of establishing the boundaries around the family and identifying the identity of family members who may be relevant to a study of a particular family is not trivial. Some members may only be present in the family home only intermittently (children studying in a different city, children of divorced parents, relatives paying regular visits). Some families accommodate or share accommodation with individuals with whom they are not related (friends, tenants, au pair) but who may participate to the household's life on a daily basis. Also, the notion of family may be extended beyond the confines of the home and is often embedded in a wider set of social relationships. Some families entertain strong links with relatives or friends with whom they meet frequently at home or outside the home, but who live completely separately from them. All those elements may have some influence one the way families and family members use and react to technology in the home.

*Drawing the boundaries around the notion of context*

One of the main purposes of ethnography is to provide a description of a situation in relation to its (social) context. The task of determining what context is or is not

relevant to a particular situation is left to the researcher (and to a degree, their reader). This task is far from being trivial and may pose problems to ethnographic researchers in terms or where to set the limits of their investigation. Researching information technology in the family involves the study of the context of family computer use, which may difficult to delineate. Context may spread in several directions: as mentioned earlier, family members are also members of several other human organisations. In addition, the context of computer-related activities may include elements such as other leisure activities, educational activities or work routines. Such activities may be carried out within or outside the home, individually, or in a group, with or without other family members.

Gray (1992) voices some concern over the common use of the term 'context' in the television-viewing literature. She recognises that Morley (1986) and Hobson (1980) have played a pioneering role in focusing primarily on context when studying family viewing, but criticises both pieces of research for conceiving of a 'unified' context. Her research seeks to demonstrate that such a context is "not unified but diverse, constituted by different household members and 'appropriate' texts" (page 12). Hammersley and Atkinson (1995) echo those concerns by outlining the necessity to account for variations in context. They suggest that the same person may display different attitudes and behaviours in different contexts. They illustrate this idea by contrasting teachers' "staffroom behaviour" with their "classroom behaviour" (page 52).

Arguably, family members may behave very differently in different settings (home, workplace, school) and an ethnographic study would benefit from an understanding

of those different behaviours. It is however difficult to carry out observations in the various contexts in which family members may be involved. Consequently, it was decided that interviews would be carried out within the 'home' context and a picture of the other contexts would be drawn from the personal accounts of the interviewees themselves. Although such a compromise is not ideal, it appears to be the only realistic way to gather such data without dedicating an excessive amount of time to the process of data collection.

### ***Establishing a 'rapport' with families***

*Negotiating access*

Negotiating access to families was not a straightforward task. First, I was surprised to discover that I did not get a single answer from advertisements I placed in supermarkets, libraries, community centres and newsletters for several months. I then turned to a less conventional advertising medium, namely electronic mailing lists. This time, I did get a few answers, but all of them originated from remote places such as Guernsey or the Shetland Islands, which were highly impractical. Concurrently, I asked friends and colleagues whether they knew of families who would be willing to be interviewed and obtained around twenty-five telephone numbers through this channel. When I called them up, some families or family members had changed their minds about being interviewed. Others asked what the interview was about and refused to participate on the ground that they were not interested or considered themselves not knowledgeable enough about computers. In many instances, my interlocutors assumed that my ultimate goal was to sell them a

computer and cut the conversation short. Nevertheless, I managed to get access to six families through this process.

Negotiation was typically done over the telephone with one of the family members. This negotiation process is not ideal, since the other family members did not directly accept to participate (some interviewees were not aware that they were going to be interviewed or even that someone was coming to visit) and therefore may have felt less involved during the interview.

*A certain lack of interest*

Even in those instances where I managed to get access to a family, I encountered several hurdles. Some family members were not in the household during the interview (Hilda Crabtree during the first interview, Mrs Sharma during the second interview). In several instances, members of the family were present but busy and therefore unable to attend the interview (Mr. O'Leary, Mr. Harrington). Others were physically present but rarely participated to the conversation (Mrs Sharma during the first interview). More generally, the respondents, even those who were willing to talk, seldom had much to say about the home computer and often switched the conversation topic. One revealing example can be found in Hilda Crabtree's response to my request to write a story about the computer. When I heard that Hilda liked to write stories, I asked her whether she would write one for me and she accepted readily. However, the subject ("One day I woke up and the computer was gone") did not seem to inspire her much. She wrote one sentence ("I shouted Daddy!"), then immediately turned the page over and started (much more

eagerly) to write another story she titled “The adventures in the jungle”. When asked why she did not write more of the first story, her answer was “I just don’t like it”, “Can’t I write about the jungle instead?”.

The adult respondents generally tried to answer questions about their home computer but I often felt that they were just being polite and would rather talk about something else. Indeed, the conversation often switched to other subjects, such as television or information technology in general. In some cases, the respondents seemed unaware that the topic of the conversation had changed. For example, Duncan Crabtree once tried to re-centre the conversation onto what he perceived to be the point of the interview (“Coming back to your computer thing…”) and almost immediately develops his argument around the theme of television.

> Duncan: …I must say I’m amazed to see what happens with computers and television and ... I remember, when I was a child, I was more interested in playing football. Before we had the TV, we would listen to the radio […].

***The process of ethnographic interviewing***

Once the families had been identified, a number of questions were raised regarding the conduct of the interviews. It must be recalled here that the research described in this thesis differs significantly from most other information systems projects for a number of reasons. First, the interviews were almost all performed within the very particular setting of the household. Therefore, I was faced with the usual difficulties in gaining prolonged access to such a private sphere. Moreover, the interviews were conducted mostly with a group of family members (although not all individuals were necessarily present throughout the whole interview). Finally, most interviews

involved communicating with children, which is a relatively unusual area within the information systems tradition. This section ends with reflections on how my own particularities may have influenced interviewees' responses and attitude.

*Conducting interviews within the domestic sphere*

The 'domestic sphere' has been identified as one of the core elements for this research. Conducting interviews in the interviewees' home allowed for a limited but valuable observation of the family 'territory'. A rapid description of the home environment is given in Chapter Five for each of the family visited at home. Much has been written about how domestic space reflects personalities and interaction but this section concentrates on the practicalities of conducting interviews in the respondents' homes. Also, interviewees were more likely to feel comfortable in their own environment than in an unknown place. Hammersley and Atkinson (1995) emphasise this point when they suggest that "with many people, interviewing them on their own territory and allowing them to organise the context the way they wish is the best strategy. It allows them to relax much more than they would in less familiar surroundings" (page 150).

Hammersley and Atkinson (1995) recommend taking account of the likely distractions when choosing a locale for interviews. In her study of women use of the VCR, Gray (1992) reports a number of factors that contributed to interrupt interviews:

> Although interviewing the women in their own homes has many advantages for the accumulation of relevant data, they are seldom places of uninterrupted peace and quiet. Small children, dogs, telephones, husbands, callers and biscuits in the oven

> all claimed attention at some time or another during many of the interviews, and whilst they provide an insight into the various demands on women's time in the home, they also disrupted the interviews considerably (page 33).

In case of this research, sources of distraction were of a different type. The locale of the interview was primarily the living room and the major source of distraction located in that area of the house seemed to be the television. In the O'Leary family, Jeremiah was facing the television set throughout the interview and, although he answered all my questions, he rarely looked away from the television. In the case of the Montenegro family, Ernesto switched the television off immediately after he realised Carlotta had switched it on ("Not now, Carlotta, we're having a guest now"), which brought about tears and screams from Carlotta, which resulted in Mariela taking her away. The telephone seemed to be the object of distraction only in one instance, during a conversation with Carita O'Leary. However, the fact that she did not come back after the telephone call was over indicates that answering the telephone could have been an excuse for her to leave the room and avoid a resuming a conversation she apparently had no interest in.

*Entering the domestic sphere*

Perhaps one of the greatest hurdles encountered by researchers of domestic life is the hermetic character of the border between the domestic sphere and the 'outside' world, not only at a physical level, but also at a conceptual level. Studying families requires a certain level of openness from the interviewees' part and individuals are notoriously unresponsive when it comes to describing their domestic life. Even in those families who were volunteering a lot of information – or, perhaps, especially

in those families - it is to be expected that some amount of information will be kept hidden to non members of the family or modified in order to comply to social norms (Anderson, 1987) or to a certain idea of what it is acceptable to show or tell a 'stranger'.

At first sight, there seems to have been few problems associated with issues of privacy or confidentiality. Only one respondent, Daffyd Williams, raised the issue of privacy, perhaps because he felt that he had given a large amount of personal information ("It's the first time I've talked about that sort of things on a tape", "You're not going to have names in your thesis are you?").

However, conducting interviews in homes made me realise that the notion of privacy goes well beyond concerns about whether one's name may or not appear in a piece of academic research. On several occasions, I was the witness of incidents or reactions that were a sharp reminder that I had entered an area of human life that was very private indeed. In geographical terms, the home seems to be divided in a series of areas, some of which are more private than others. For example, each time I visited a family in their home, I was automatically offered a seat in the living room, which is presumably a semi-public area where guests are usually welcome. I was seldom shown the other, more private, areas of the house. In those houses where the computer was not in the living room, I encountered a variety of responses when I asked to see the computer. Mr Sharma himself asked his daughters to show me the home computer situated in their room whereas Mrs O'Leary made me understand that I could not have access to the children's room ("Carita is changing, so…"). The first reaction I got from the Williams family when I asked whether I

could take a picture of the study was one of surprise. They did agree to it but only after they had removed the pile of documents that were sitting on the couch (Daffyd was working on Jane's mother tax declaration) - "You don't want all this mess in your picture". After this incident, Jane admitted that she was relieved that I did not take a picture of the kitchen ("at least you didn't take a picture of my kitchen"), which suggests that the kitchen is more 'her' space whereas the study is more 'Daffyd's' space.

A particular effort was made to protect the Williams family's privacy, because Daffyd provided much personal information throughout the various interviews and expressed concern about the confidentiality of the research.

*Interviewing the family as a group*

Most families were interviewed as a group. Hammersley and Atkinson (1995) pinpoint that the possibility of distortion is always present in such occasions, but that group discussion may provide valuable insights that may not come out in one-to-one interviews.

> […] what is lost in terms of information may be compensated for by the illumination that the accounts provide into the perspectives and discursive repertoires of those being interviewed. (page 147)

Interviewing families as a group appeared to be the most practical solution to the problem of parental suspicion. However, this solution may raise other problems. For example, many parents tended to answer themselves when I asked a question to their children.

LH: How much time do you spend watching television, Jeremiah?

Trini: When it's a Saturday he spends 2 hours in the morning. But today it was about five hours, wasn't it?

LH: [to Hilda] So what else do you do with your spare time?

Cassandra: She doesn't have any spare time. She's got a very busy schedule.

[…]

LH: [to Hilda] So how did you learn those sonnets?

Cassandra: On Saturdays, Duncan, he drives to Oxfordshire and she goes with him and that's when he teaches her isn't it?

[…]

LH: [to Hilda] So at what time of the day do you watch TV?

Duncan: She comes in at 4 o'clock. Claudia takes care of her.

[…]

LH: [to Hilda] Do you eat at school?

Duncan: Sometimes she has school lunch, sometimes she brings a sandwich. It depends what her friends are doing.

[…]

LH: So do you have to learn things by heart at drama school?

Duncan: She is brilliant at learning things by heart.

At some point, Duncan intervened to stop Cassandra "putting words in her [Hilda's] mouth".

LH: What's your favourite TV programme?

Hilda: Waltons, Pippi long stockings.

[…]

Cassandra: What were we watching tonight?

Hilda: Neighbours.

Cassandra: You watched Star Trek.

> Duncan: Don't try to put words in her mouth. I bet you like Star Trek much more than she does anyway.

The difficulties encountered in interviewing families as a group were sometimes enhanced by an additional challenge, namely communicating with children and interpreting their response in a way that would make them informative to the researcher as well as the reader. The reality of such a challenge is described in the next section, where we give examples of disconcerting or puzzling answers emanating from one of the child respondents.

*Communicating with children*

Child populations pose a particular challenge to researchers of any discipline. Numerous authors have emphasised the difficulties involved in trying to pierce through the wall between children's world and adult world (Denzin, 1977; Garfinkel, 1986; Goffman, 1967; Lemish, 1987; Mandell, 1988; Speier, 1973; Wartella, 1987; Wolf, 1987). It is widely accepted that children react differently to their environment and have their own way of expressing their thoughts and emotions. More generally, children are considered to have interests, needs, concerns and range of emotions that are radically different from those experience by adults and tend to create, to a certain extent, their own language, symbols and references. All those considerations contribute to make the task of studying children particularly challenging.

Lindlof (1995) identifies several other obstacles encountered by observers who attempt study children. Firstly, children are typically closely supervised by adults, which may cause some interference to the researcher-child relationship. Secondly,

most adults remember (or believe they remember) their childhood time, which may render them overly confident regarding their abilities to adapt to children's culture. Finally, Lindlof (1995) suggests that there is little scope for participant observation, since children will normally not accept an adult acting as a child.

During the interviews carried out for this research, conversations with children were often informative, but sometimes puzzling. For example, Hilda Crabtree often seemed to be rather vague when answering questions. Even when her stepmother Cassandra prompted her, she provided very little detail as to what she actually did with the home computer.

> LH: Hilda, what do you do with the computer?
>
> Hilda: Bennett's got the same computer as Cassie. I sort of play on Bennett's computer. You put the disk in and there's all sorts of games you can play. You've got to try to beat the computer. And... you can print out. Any kind of pictures. I normally win.
>
> Cassandra: Well, you cheat sometimes. What games do you play on the computer?
>
> Hilda: I play art, Backgammon, cards, you know these card games and... that's really all I play…

She remained just as elusive when asked to describe what she did with the Internet.

> Duncan: You also use the Internet, do you?
>
> Hilda: I talk to a 12-year old.
>
> Cassandra: She's corresponding with other children.
>
> Hilda: We write on the screen.
>
> Cassandra: Who do you get letters from?
>
> Hilda: We don't get letters.
>
> Cassandra: Well, messages or whatever you call it.

LH: Where are those children from?

Hilda: Don't know.

LH: What do you talk about with them?

Hilda: Can't remember.

Duncan: Are you sure you do that at all? You're not making that up?

Cassandra: Yes, she does, Bennett told me. But only when he's around.

However, Hilda appeared to be equally evasive when asked about other aspects of her life, such as her church visits.

Cassandra: There's also a church next to where her Mum lives. She goes there on Tuesdays.

LH: So what do you do there?

Hilda: We watch some videos... about Christian things. We've got some visitors coming round. There was this woman. She read a thing about Jesus…

Her description of her mother's boyfriend's workplace was equally vague.

Hilda: There are children there. They live in a big flat that's next to it [the office]. They have tables and things.

Another element of complexity may arise from the gap between children and adult logic. Some children's answers may sound somewhat chaotic to an adult ear. Here again, Hilda's conversation provides some examples of such problem.

LH: What kind of music do you like? Do you like pop music?

Hilda: Pop? Yes, the Spice Girls. And Mozart. And Pavarotti.

[…]

Cassandra: What do you do on Saturdays? You've got drama…

Hilda: I've got drama. And I run.

Duncan: You run?

Hilda: Yes, I run.

Duncan: Where?

Hilda: At school. In the school yard.

Duncan: [laughs] That's not running. Everybody runs around at break time.

Hilda [looking upset]: You don't understand. I run fast.

The transcripts presented here are but an illustration of the challenges researchers are faced with when trying to study child respondents, especially in the presence of adult members of their families. We next move on to explore other challenges, in particular the need to keep in mind while doing interpretive research that a researcher's characteristics play a non-trivial role in shaping the attitudes and responses of the interviewees.

*How my own particularities may have influenced the interviewees' responses.*

Interpretivist thinking suggests that real-life data does not stand an independent entity but is the result of a social interaction between people, and not least between researcher and respondents. As noted earlier, in the anthropological tradition too there is a keen concern with what the consequences of a researcher doing research might be, and more generally the Hawthorn effect is an eternal concern for social scientists. Thus in this study I have to acknowledge that my own particularities may have influenced in many ways the kind of information I gathered from the various interviewees.

For example, my French nationality probably prompted some remarks that the interviewees thought could be of interest to me.

Duncan Crabtree: I just had a job with the French Embassy, actually…

[...]

> Bernard Sharma: She [Maia] started French at school.

My religion was mentioned in one of the interviews.

> Daffyd Williams: I don't know how religious you are, coming from France you must be a good Roman Catholic.
>
> LH: No, actually, I'm Jewish.
>
> Daffyd Williams: You're Jewish? Wonderful! So you know the Old Testament backwards! You know, Jesus was a Jew and Jesus gets mentioned nineteen times in the Koran. Have you ever read the Koran?

My gender may also have caused some restraint from interviewees. In two instances, interviewees started giving their views regarding the link between gender and computer use but tempered them almost immediately, which might be due to the fact that their interlocutor was a female. The first instance was Ehsan Ahmed explaining why his sister was somewhat excluded from the computer game playing activities among siblings. His reasons for not taking her wishes into account were threefold. First, he affirmed that "she hadn't shown interest in it [the computer]", which was inconsistent with his former acknowledgement that she "wanted to play more than she did". Second, he explained that, because she was the youngest, she was "not good at games". Third, he mentioned that "she's a girl" and almost immediately added "It's not me being sexist or anything, it's in our culture" and gave an example of such cultural differences "my older sisters, they don't work". However, he did not accept full responsibility for his sister's relative exclusion.

> Ehsan Ahmed: Nasif wouldn't let her […] Tamim and I would tolerate her, we had no problem with her.

The second instance was Trini O'Leary, who defended her choice not to acquire a modem. She believed that a modem would only benefit her son Jeremiah because

her daughter Carita had little interest in getting a modem and, more generally, in using the home computer.

> Trini O'Leary: She's not all that interested, you know. I mean, she's a girl… I mean… there are exceptions of course but… No, she wouldn't be interested, I'm pretty sure…

The fact that I was doing research on computers may have influenced some of the answers. In particular, one of the respondents seemed to be 'taking the defence' of computers.

> Bernard Sharma: […] you know how it is, it takes time to get accustomed to it. People are used to doing things one way, they don't want to do it any other way.

The way this remark was formulated made me think that Bernard was trying to get 'on my side' by finding a rational explanation to the apparent reluctance to embrace information technology at his wife's workplace.

This section is dedicated to reflecting on the practicalities of interviewing families in the domestic sphere and has presented a large amount of transcribed examples to illustrate this point. Those examples were certainly informative and useful in reminding me that the researcher's job is never as straightforward as it may first appear to be. However, there is perhaps a need to go beyond the 'anecdotal evidence' and try to establish a more 'generally reflective' attitude towards doing interpretive research. Researchers need to be aware of the existence (and prominence) of their own filter and of their own characteristics at all times and not solely when they are reminded of them (for example when faced with apparent contradictions or inconsistencies).

## Section 4: Conclusion

This chapter has shown that an analysis of family experiences with and around home computers requires the use of an interpretive approach. The main arguments developed in this chapter are that an interpretive approach is best suited for the research outlined in this thesis, as opposed to a more positivist research paradigm, and that within this broad approach it is ethnographic methods that can provide the strongest and deepest data for analysis. It has been argued that a study of computers in the home can hardly claim scientific objectivity. It is clear that the stated purpose of this thesis is not to generate truth or social laws but to contribute to further research by offering a rich insight into the relationship between information technology and family life.

This chapter has especially emphasised the need to understand phenomena within their social contexts and explored ways to carry out an enquiry into the cultural and contextual aspects of information technology in the home. Within an interpretive framework, a number of methods were available and this chapter has outlined the various steps of the quest for the most appropriate method. Because it focuses on giving a 'voice' to computer users and non-users in families who own or have access to a home computer, this dissertation uses ethnographic techniques for the gathering and the analysis of data. Following on from this an investigation of the main issues related to the conduct of in-depth interviews using ethnographic techniques was carried out.

Several types of practical considerations regarding the conduct of the empirical phase of the research have been investigated. Questions of definition and delimitation of family life and its context have been addressed. The difficulties involved in negotiating access to such a private and complex environment as the home have been reviewed and several issues such as the feasibility and benefits of interviewing the family as a group have been put forward.

The following chapters provide an illustration of a research process using an interpretive approach. Chapter Four investigates and summarises the themes along which the data were to be gathered. Chapter Five presents the findings of the research along the lines suggested in Chapter Four. The analysis carried out in Chapter Six is based on the findings in Chapter Five but aims to identify the 'missing links' or 'grey areas' that had not been covered throughout the use of the framework presented in Chapter Four. By highlighting the possible contradictions between the theoretical preconceptions outlined in Chapter Four and the findings presented in Chapter Five, Chapter Six allows for a new interpretation of the data.

# CHAPTER FOUR: FRAMING RESEARCH IN A FAMILY CONTEXT

> Shahrazad turned to King Shahrayar and said, "May I have your permission to tell a story?" He replied, "Yes" and Shahrazad was very happy and said, "Listen":
>
> *The Arabian Nights*

## Section 1: Introduction

This chapter is an attempt to make a link between the preceding chapters, which relate a search essentially driven by the desire to create an interdisciplinary study of a new field, and the following chapters, where I attempt to deal with the practicalities of doing empirical work, analysing and reflecting on real-life data. I choose to make this link by describing a 'journey' or 'quest' for a framework to organise the concepts surfacing from the review of the literature.

### *The role of the 'framework'*

Identifying and organising conceptual elements that would help understand the field data has been a long but exciting process. This process started as an effort to build a 'model' or 'framework' that would summarise and organise the various theoretical elements gathered from the literature review into a tool aimed at facilitating the collection and the subsequent analysis of the data. It is important to clarify here that the meaning of the words 'model' or 'framework' in this thesis

differs considerably from the meaning those same words may bear in research works carried out with a positivist approach. In the positivist tradition, the word 'framework' refers to a hypothesis or series of hypotheses that are decided upon during the initial stage of the research (hypothesis building) and remain unchanged throughout the empirical (hypothesis testing) and conclusion phases. The fixed character of the hypotheses and of the framework that relates to them follows the positivist principle of generalizability of results.

In this thesis, however, the 'model' or 'framework' plays a different role or set of roles. The primary role of the framework is to organise the initial themes identified as relevant to the research to provide a point of entry. This can then be used as a basis for building an 'interview outline' that would ensure that no one theme is overlooked while conducting the interviews. The framework would also allow for the presentation of the collected information in a way that facilitates some comparisons between the various case studies. Finally, it would act as a starting point for the analysis of the data. However, the aim of the research is to get beyond the initial level of understanding represented in a framework. Therefore, the analysis will not and must not be restricted or bounded by the framework. On the contrary, the main contribution of the analysis phase is expected to consist in revealing weaknesses and shortcomings in the framework, first by shedding light on those elements of the framework that are not adequate or relevant to the case studies; second and perhaps, more importantly, by identifying those areas that the framework fails to cover or those issues that need to be addressed from a different angle.

This framework is therefore not intended as a definitive grid to map answers to pre-defined questions. It is rather a tool, a step in the research process opening the way to further investigation. The most interesting aspect of the framework resides precisely in the knowledge that it is incomplete and imperfect (and we will have to resist the temptation to focus on improving it). Not only would it be unrealistic to expect the investigation to allow the framework to reach or even approach a state of comprehensiveness or perfection, but it would also be in opposition to the principles of an interpretive approach. The purpose of the investigation is not to refine the framework *per se* but to use the framework as a tool to provide new perspectives to the problems of studying technology in the family.

***Overview of the historical developments of the 'framework'***

The initial idea was not so much to build a framework as to identify a set of concepts that would help to describe family life and its relationship with home computer technology. In reviewing the literature dealing with aspects of every day family life, a number of themes emerged, principally associated with the interlocking concepts of time, space, budget, gender differences and inter-generational relationships. Those concepts were by no means the only or even the most prominent themes developed throughout the literature, but appeared to be most relevant to the purpose of this thesis. This first phase of 'brainstorming', described in Section 2, was followed by a period of reflection over the possible categorisation of the various themes and concepts as identified above. Several disciplines from the social sciences were investigated but failed to provide the

academic background needed to support the claim that the themes listed above constitute alone a solid basis on which to build further research. Some of the ideas developed by the anthropologist E.T. Hall, for example, first appeared to relate more or less closely to the set of themes identified in Section 2. Nevertheless, as mentioned in Section 3, it was felt that the model presented in his 1959 book *The Silent Language* was more an aggregate of seemingly unrelated themes than a research framework enabling the gathering of data and facilitating their interpretation.

Further investigation of the literature led to Orlikowski's work on 'the duality of technology', described in Section 4. Orlikowski's argument was primarily based on Giddens's structuration theory. The theory of structuration as developed by Giddens appeared doubly interesting. First, it had been widely used throughout the world of social sciences and had been seen as being of particular relevance to the information systems discipline, as explained by Orlikowski. Second, the theory of structuration provided a broader and more encompassing structure for the themes identified in Section 2.

## Section 2: Organising themes from the literature

The main goal of this research has always been to provide an understanding of the way family life evolves and adapts around home computers. In order to achieve this goal, it is necessary to answer a number of questions. The first question relates to the definition of the terms 'family life' and 'domestic sphere'. The second question

concerns the nature of the interaction between home computer technology and family life and its place within the domestic sphere.

As mentioned in Chapter One, the concept of 'family' is extremely difficult to delimit and the notion of 'the domestic' is also a very fluid concept. Defining 'family life within the domestic sphere' is therefore doubly challenging. A superficial view of what is commonly referred to as 'family life' would concentrate on the practical and behavioural issues associated with domestic life, i.e. the activities performed on a day-to-day basis. From this perspective, 'family life within the domestic sphere' would be reduced to a set of activities performed by family members either with each other or on their own inside the home. Such activities are very diverse but could be grouped under a number of headings, such as 'educational activities', 'leisure activities', 'job-related activities' and 'family duties'.

Such a view appears unsatisfactory for several reasons. Firstly, a number of activities could belong to more than one category. For example, surfing the Internet is considered by some to be pure leisure whereas others might see it more as an educational tool or a way to acquire information necessary for job-related purposes or to fulfil some family-related duty. Secondly, home life is the theatre of a multitude of activities, many of which cannot easily be categorised. For example, activities such as sleeping or washing do not obviously belong to any of the categories listed above. Thirdly and most importantly, simply mapping the activities undertaken by various family members in the home would fail to provide

much information about the meaning and purpose of those activities, the needs they satisfy or the tensions and conflicts they engender.

It therefore becomes apparent that a mere description of family activities is too limited an approach if one wants to collect the depth and the breadth of background information needed for this research. In an effort to enlarge or enrich the picture, one may want to consider the existence of multiple interpersonal relationships within the family. Intuitively, one may identify the main relationship streams within the family as being 1) male-female relationships and 2) inter-generational relationships. However, a number of problems appear when trying to derive the practical implications of such a categorisation. First, some interpersonal relationships within the family do not belong to either category. For example, the above categorisation does not take into account the case of siblings of the same gender or of age differences between siblings. Second, some relationships typically belong to both categories (father-daughter or mother-son relationships, for instance) but could be perceived as being more representative of one or the other.

As described in Chapter Two, a number of other themes emerge from the literature review, namely time, space and budget. The importance of those themes actually goes beyond the realm of home technology research. Other areas of research dealing with the notion of family (sociology, anthropology and psychology) have dedicated a lot of attention to those three notions. Also, the information systems discipline has often studied the question of change in the use of time, space and budget with regard to the advances of technology. They constitute a third set of categories, all of which are related to the two sets mentioned above.

The first approach was to arrange those three categorisations in a matrix form, in order to allow categories from one set to match the categories from the other sets. The main problem here was that those three sets of categories seemed to constitute what looked as three dimensions, which conflicts with the traditional two-dimensional form of matrices. In order to circumvent this problem, two types of arrangement were envisaged. The first one consisted of a series of three two-dimensional matrices as illustrated in Figure 4.1.

| | Gendered relationships | Inter-generational relationships |
|---|---|---|
| Job-related and money-gathering activities | | |
| Educational activities | | |
| Leisure activities | | |
| Family duties | | |

| | Time | Space | Budget |
|---|---|---|---|
| Job-related and money-gathering activities | | | |
| Educational activities | | | |
| Leisure activities | | | |
| Family duties | | | |

| | Gendered relationships | Inter-generational relationships |
|---|---|---|
| Time | | |
| Space | | |
| Budget | | |

Figure 4.1: First attempt at arranging the three sets of categories in a matrix form.

The second possible arrangement was in the form of a three-dimensional matrix where all sets of categories would be matched against each other. However comprehensive this solution might look, it turned out to be a very impractical one and was therefore rejected. Nevertheless, there seemed to be a need for integrating the three themes. An attempt was made towards building a two-dimensional matrix that would include all the themes identified above and remain relatively simple to handle (see Figure 4.2).

| | | Resources | | | Roles and inter-personal relationships | |
|---|---|---|---|---|---|---|
| | | Time | Space | Budget | Gender-related relationships | Inter-generational relationships |
| Activities | Job-related and money-gathering activities | | | | | |
| | Educational activities | | | | | |
| | Leisure activities | | | | | |
| | Family duties | | | | | |

Figure 4.2: Second attempt at arranging the three sets of categories in a matrix form.

The first five 'test' interviews performed for this research were based on a series of questions covering the topics present in Figure 4.2. Because the results of those interviews were satisfactory, it was decided that Figure 4.2 would be used as a tentative framework for the conduct of the following interviews.

## Section 3: Grounding the framework

The next step consisted in returning to the literature to add theoretical backing to the above framework. At that stage of my research, I had not investigated much of the literature outside the information systems and management fields. One of the courses I took in my MPhil year, *Introduction to the Study of Information*, opened new horizons for me in showing how the work of researchers in other areas of the social sciences may be used in the information systems field. Through this course, I was introduced to the notion of semiotics, and more importantly, to its implication for information systems research. Among the various notions presented by Liebenau and Backhouse (1990) in the core textbook of this course, the map of culture developed by the anthropologist Hall (1959) struck me as particularly relevant to my work. This identifies ten 'streams of cultural messages', namely interaction, association, subsistence, bisexuality, territoriality, temporality, learning, play, defence and exploitation of material resources.

It is beyond the realm of this thesis to provide an in-depth analysis of Hall's categorisation but it is appropriate to give a succinct definition of each of the ten notions listed above. The term 'interaction' refers to the relation between man and

his human and non-human environment. ‘Association’ is a specific kind of interaction: the relation between two or more human beings, “the various ways in which societies and their components are organised or structured” (Hall, 1959, page 41). ‘Subsistence’ includes “everything from individual food habit to the economy of a country” (Hall, 1959, page 41). What is referred to as ‘bisexuality’ is a general term encompassing all gender relationships. ‘Territoriality’ is “the technical term used by the ethnologist to describe the taking possession, use and defence of a territory on the part of living organisms” (Hall, 1959, page 45). ‘Temporality’ is used to characterise the time-related elements of life, such as cycles and rhythms. ‘Learning’ is described as an adaptive mechanism that is facilitated by the use of language. ‘Play and humour’ are rather self-explanatory concepts. ‘Defence’ is used to counter not only the “potentially hostile forces in nature” but also those of human society and defence techniques include religion, medicine and law enforcement. Finally, man develops artefacts such as weapons, clothes, furniture and money, in order to maximise the ‘exploitation’ of his environment.

In an attempt to make Hall’s model relate to my own research framework I considered each of the ten ‘streams of cultural messages’ in the light of the three sets of categories identified in Section 2. This attempt is illustrate graphically in Figure 4.3.

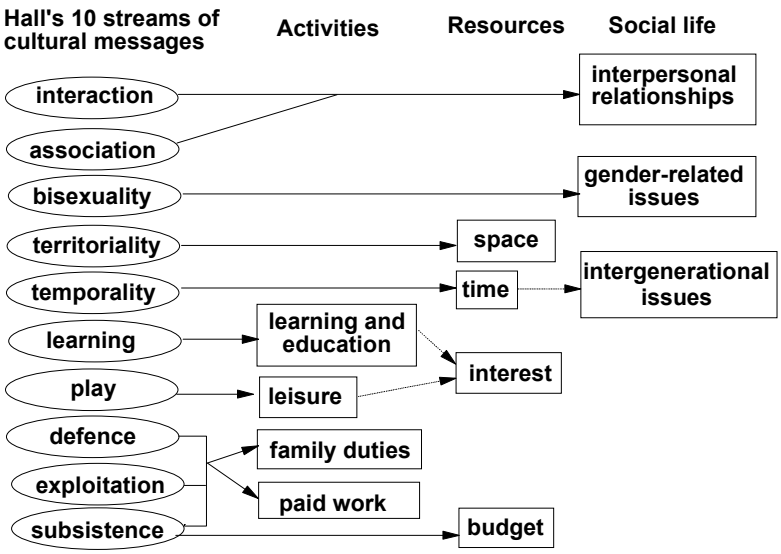



Figure 4.3: Relating Hall's model to my research

## Section 4: Criticisms and reworking of the framework

The framework outlined above was presented to various audiences and received some very constructive criticism. The first problem resided in the existence of a large number of themes only loosely related with one another and the difficulties to make them all fit into a two-dimensional matrix. Other critiques outlined the need for a simpler but more logical framework. Overall, it was felt that the main weakness of the initial framework resided in the fact that it had been built in a very *ad-hoc* fashion without any real theoretical foundation. More precisely, the various steps taken in the process of building the framework had followed a sequence that did not allow for the development of a theory along the lines of an academically accepted logic. Indeed, the 'intuitive' method that consisted of starting off with the end product and working at finding a theoretical justification to that end-product revealed itself to be less than satisfactory.

There was then a need for a 'second round' of literature review but this time, from a different perspective. In order to come to grips with this new perspective, a critical evaluation of the first perspective was needed. The main problem with the initial approach was identified as being the 'going backwards' method used for building the framework: first, a number of themes had been identified, then a series of 'keyword searches' were performed in order to gather the literature that seemed to relate more closely to those themes. It could have been expected that the literature gathered through such a method would concur with rather than challenge the elements of the 'intuitively built' framework without providing depth or coherence among them. Another problem linked with the use of the keyword-searching method was that it only allowed for a superficial overview of the various pieces of work bearing some relation with the keywords, whereas the priority was to acquire a deeper understanding of the interrelations between the various concepts of the framework.

It was therefore decided to go back to basics. The first task was to identify the most commonly used theories within the information systems field. A number of them bore some relation with the subject of this thesis (including the stages of growth, life cycle, etc.) but, because of their lack of breadth or depth, did not seem to be suitable as a general basis for the framework. The problem may have resided in the fact that the first type of literature to be addressed was that of information systems management rather than the more society-oriented end of the spectrum. There was a lot to choose from, therefore priorities had to be set in order to perform this choice. The emphasis was on finding a broad and solid basis for the framework. One of the

prime candidates for such a basis appeared to be the 'structurational model of technology' theory developed by Orlikowski in her 1991b paper: *The Duality of Technology: Rethinking the Concept of Technology in Organizations*. This paper provided both a basis in a theory that was widely recognised within and beyond the information systems community and a link between information systems and other areas of social science, and, in particular, sociology.

Orlikowski's model owes much to Giddens's theory of structuration. However, it is interesting to note that Giddens's theory is not the starting point of Orlikowski's model and is only introduced about halfway through the theoretical part of her paper. It has to be remembered that Giddens's theory is not directly applicable to the study of technology. It deals with the relationship between the structure of society and human action. Orlikowski's adaptation of this model consists in introducing another dimension to the concepts of modalities between structure and human action, namely the notion of technology. Technology is to be considered "as one kind of structural property of organisations developing and/or using technology" (page 10). Taking into account Giddens's two elements of organisational structure allows for a more detailed description of the new model, "technology embodies and hence is an instantiation of some of the rules and resources constituting the structure of an organisation" (page 10).

Orlikowski's adaptation of Giddens's framework allows her to identify four different roles played by technology in the institution/agent interaction. First, technology may be seen as the product of human action. Orlikowski recalls that technology is designed, developed and maintained by human action. But the effect

of human interaction on technology goes beyond the physical or material aspects of technology and entails the fundamental concept of social construction of technology: human users socially construct the technology by appropriating it and making it meaningful.

Second, technology can also be the medium of human action. The term 'medium' may refer to a number of concepts. Technology is sometimes seen as a facilitator of human activities. In some cases, however, it puts constraints on them. Those effects are also closely linked to other factors such as "the actions and motives of designers and implementers; the institutional context in which technology is embedded; and the autonomy and capability of particular users" (page 18).

The third element of interest in the technology/society interaction may be found in the institutional conditions of interaction with technology. This concept refers to the influence those institutional properties such as professional norms or available resources may have over human actors. The term 'institutional' reveals that the object of the investigation entails not only the organisational structure itself but also the environment with which this structure interacts.

Finally, a fourth item of interest may reside in the institutional consequences of human interaction with technology. Human actions involving technology influence institutional properties, either through reinforcing the existing organisational structures or by disrupting them, although such influence is generally not evident, even for those who perform those influential actions.

The apparent simplicity of this presentation may be the source of some further problems: for example, it was assumed at first that it could be applied directly to the study of technology within the family. However, a closer look at the categories displayed above gave rise to a series of questions concerning the concepts involved, in particular, the concepts of institution, institutional properties, agent, human action. In an effort to provide a clearer definition of those concepts, an investigation of their meaning in the 'original' text (Giddens's introduction to the theory of structuration) was carried out.

It was initially hoped that Giddens's theory of structuration could become the basis for a new framework for this research. However, a study of Giddens's work (1976, 1979, 1981a, 1981b, 1984, 1987, 1989) revealed the existence within this theory of a large number of concepts, some of which bore little or no relevance to the research of this thesis. Elements such as the concept of 'system', the notion of 'agent knowledgeability' or the 'duality of structure' were found to be only marginally relevant to this research, although they formed an important and sometimes fundamental part of the theory of structuration.

The choice was then between two strategies. The first possibility was to embrace fully the theory of structuration as the basis of this research, which would have translated into a total reworking of the framework and ultimately a shift of focus for the whole thesis. The second strategy was to put aside those elements of the theory of structuration that were not directly relevant to this thesis and retain only those elements that offered some practical insight into our research.

Within the theory of structuration, two sets of ideas were found to bear particular relevance to this dissertation. The first set of ideas encompasses the interrelated notions of rules and resources. The second set of concepts includes time, *durée* and the related concepts of routinization and rites of passage.

## Section 5: Developing key concepts

### *Structure as rules and resources*

Structural properties are defined by Giddens (1984) as consisting of the combination of two elements, namely rules and resources. Rules are 'generalizable procedures' that apply to the reproduction of social practice. Giddens insists that not all rules are stated or 'formulated'. Formulated rules are "codified expressions of rules rather than rules as such" (page 21). But the bulk of rules governing social life seem to be constituted of non-formulated rules. The term 'non-formulated rules' refers to those rules that have not been expressed verbally or in a written form but are nevertheless enacted by humans in their day-to-day social activities.

Giddens offers a sophisticated tool for uncovering the differences and outlining the demarcation between the various types of rules. He uses four sets of qualifiers when referring to the characteristics of rules, each of which consists of a pair of opposite notions: intensive/shallow, tacit/discursive, informal/formalised, weakly sanctioned/strongly sanctioned. Any rule can therefore be characterised by a series of four elements, each of which may be graphically represented by a dot 'somewhere along the line' between two opposite notions as described above.

If this research were geared towards building a highly structured framework of family life around the home computer, such a detailed categorisation would be extremely useful. However, this categorisation appears too restrictive when undertaking interpretive research in a novel domain. Indeed, reducing the complex concept of rules to a four-dimensional 'map' appears excessively limited. This is not to say that Giddens's concepts are ignored in this research. On the contrary, Chapters Five and Six often mention and describe rules as more or less tacit, more or less formal or more or less strictly enforced. But we believe that confining the analysis of family rules to a set of four dimensions is unduly restrictive and ill adapted to this research (and, indeed, as suggested in Gregson (1989), Giddens did not have empirical work in mind).

Giddens (1984) explores the notion of resource in a later chapter dedicated to understanding the concepts of change and power. Resources are therefore investigated from the particular point of view of 'structures of domination'. The resources that constitute structures of domination, he argues, are of two types: allocative (which includes material and physical resources), or authoritative (which refer to more cultural or moral resources). The classification of resources under these two categories is presented in Figure 4.4.

| Allocative resources | | Authoritative resources | |
|---|---|---|---|
| 1 | Material features of the environment (raw materials, material power sources) | 1 | Organization of social time-space (temporal spatial constitution of paths and regions) |
| 2 | Means of material production/reproduction (instruments of production, technology) | 2 | Production/reproduction of the body (organization and relation of human beings in mutual association) |
| 3 | Produced goods (artifacts created by the interaction of 1 and 2) | 3 | Organization of life chances (constitution of chances of self-development and self-expression) |

Figure 4.4: Giddens's (1984) classification of resources (page 258)

In relating Giddens's classification of resources to this thesis, we encountered the same type of problems as with other classifications or frameworks, namely that the themes that we considered relevant to this research did not seem to 'fit' the classification. For example, although time and space appeared to fit quite neatly as the first authoritative resources ("organization of social time-space"), it was not clear whether financial resources belonged to the first type of allocative resources ("material features of the environment") or to the second type ("means of material production/reproduction"). In addition, several of the 'classes' of resources outlined by Giddens did not relate directly to any of the resources identified through the literature review. It was therefore decided that, although Giddens's framework allowed for a more comprehensive understanding of the notion of resources, we would keep to the initial 'narrow' conception of resources as time, space and budget, at least to begin with. (However, we will see in Chapter Six that, in the light of the empirical work, we will broaden our conception of the notion of

resource to include other, more 'moral' resources, than the three initial notions of time, space and budget).

However, the relevance of Giddens's work to this thesis did not stop here. After having decided to restrict our initial outlook on the notion of resource to the three concepts of time, space and budget, we sought to delve deeper into those three concepts. While working towards a richer understanding of time within the context of the family and the domestic sphere, we came across the notion of repeated and repetitive time and found Giddens's (1984) notion of *durée* of much relevance to this thesis.

***Time, durée, routine and crises***

When introducing the concept of *durée*, Giddens (1984) refers to Levi-Strauss's expression of 'reversible time'.

> The *durée* of daily life, it is not too fanciful to say, operates in something akin to what Lévi-Strauss calls 'reversible time'. Whether or not time 'as such' (whatever that would be) is reversible, the events and routines of daily life do not have a one-way flow to them. The terms 'social reproduction', 'recursiveness' and so on indicate the repetitive character of day-to-day life, the routines of which are formed in terms of the intersection of the passing (but continually returning) days and seasons. Daily life has a duration, a flow, but it does not lead anywhere; the vary adjective 'day-to-day' and its synonyms indicate that time here is constituted only in repetition. The life of the individual, by contrast, is not only finite but irreversible, ' being towards death'. 'This is death, to die and know it. This is the Black Widow, death' (Lowell). Time in this case is the time of the body, a frontier of presence quite different from the evaporation of time-space inherent in the duration of day-to-day activity. Our lives 'pass away' in irreversible time with the passing away of the life of the organism. The fact that we speak of the 'life cycle'

> implies that there are elements of repetition here too. But the life cycle is really a concept hat belongs to the succession of generations and thus to the third dimension of temporality indicated above. This is the supra-individual *durée* of the long-term existence of institutions, the *longue durée* of institutional time. (Giddens, 1984, page 35).

Because the life of an individual is equal to the life of that individual's body it is finite and irreversible. By contrast, the day-to-day routine of individuals is, by essence, repetitive. The cycle of life, constituted of ever-recurring events, such as days and seasons, therefore transcends the limitations of 'body-time'. This concept of 'time beyond time' is what Giddens (1984) refers to as '*durée*'. The notion of '*durée*' is particularly useful as far as the life of institutions is concerned. Because institutions exist beyond the life of individuals, Giddens refers to their long-term existence as '*longue durée*'. The 'reversible time' of institutions is an essential element of the duality of structure: through the day-to-day routines, individual practices become 'institutionalised'; conversely, the institutions thereby created provide a basis or 'foundation' that may in turn influence human activities and practices.

The family offers a practical example for this argument. The family, as an institution, transcends the life of the individual family members. Most individuals spend their formative years within a family and the majority proceeds to build a family of their own after they have reached adult age. Within the family of origin, the individual seems to play more the role of a 'receptor', interiorising family norms and routines. As a 'founder'-member of a new family, this same individual is likely to reproduce some of those routines, therefore ensuring the transition

throughout time and generations. Although this process effectively happens by way of individual acting and learning, it eventually results in the creation of a broader entity that is the family. The term ‘family’ might appear ambiguous here, due to its several meanings. A set of individuals can be said to constitute a nuclear or quasi-nuclear family. One characteristic of such a grouping is that the members cohabit within a same time-space frame. But the word ‘family’ is also employed to refer to a succession of generations linked, at least partly, by blood. Also, the notion of ‘family’ can be used in a more abstract sense, referring to a more general conception of the family, as a type of human grouping, or as an institution.

Giddens (1984) sees the life of an individual as composed of routine and crisis elements. The term ‘routine’ is used to refer to activities that are consciously or unconsciously reproduced on a daily basis or with some sort of regularity. At first view, the term ‘crises’ or ‘critical situations’ seem to designate non-routine elements and, more particularly, elements that contribute in some way to disrupting the routine activities mentioned above. He introduces a third concept that goes beyond this opposition between ‘routine’ and ‘crises’, and refers to it as ‘routinization’. The term ‘routinization’ relates to the idea of daily routine but includes also the various ‘crises’ that break the daily routine of an individual and that Giddens terms ‘rites of passage’. The term ‘rite’ is chosen specifically because it refers to the idea of reproduction. By definition, ‘rite of passage’ includes elements that are reproduced over time, although not on a regular basis. When one considers the family, for example, one may distinguish several rites of passage such as birth and death, but also betrothals, weddings or divorces.

The twin concept of 'routine' and 'rites of passage' is seen to have relevance to the study of home computers and the family. It has been commonly accepted that the presence of information technology in the home may influence the daily routine of individuals (Haddon and Silverstone, 1992, 1993). The expression 'rite of passage', however, appears rarely if at all in studies of technology and the family. The relative inappropriateness of the expression 'rite of passage' for the purpose of this thesis is partly related to the fact that a very small number of families have owned a home computer for more than a decade and such a short period of time does not allow for a satisfactory examination of the notion of 'rites of passage'. However, it does not seem unreasonable to suggest that some events could be viewed as 'mild crises' that break with the routine of everyday use of information technology. Such events might include the acquisition of a new piece of hardware or software, involving elements such as negotiation (e.g. discussions), information gathering (through conversations, reading, etc.) and long-term planning (e.g. budgetary), and, in many cases, a break in the daily routine of family members. The act of purchasing and bringing the computer home (or receiving it at home) is often a very intense and highly anticipated moment. The breakdown of a piece of equipment may also constitute a crisis of uncertain magnitude, requiring the owners to take action (repair, replacement, disposal…) and disrupting established routines.

A similar concept is seen in the work of Reiss (1981) presented by Silverstone (1994), which attempts to understand the family through the use of the notion of paradigm. What he calls 'family paradigm' is the set of constructs, expectations and fantasies that is shared within the family. He distinguished between 'ceremonials',

which are infrequent but significant symbolic episodes within the life of the family and daily routines that he calls ‘patterns regulators’.

Another similar element may be found in the notion of ritual. As noted in Chapter Two, media research has often used the concept of ritual, although the meaning of the term ‘ritual’ varies from one author to another. Karin Becker (1995) considers rituals to be “public events involving a large number of participants” (page 629). Those events “are characterized by being out of the ordinary, bounded and set apart form routines of daily life” (page 629). However, reviewing the media literature, she identifies a number of conceptions of ritual that differ significantly from the above definition. She notices that the concept of ritual has evolved over the years. The early belief that ritualised viewing was inherently passive and non-selective was challenged by authors such as Rubin (1984) who wished to “include the active selection and integration of particular types of programming into viewing rituals” (page 631).

In this section, we have recounted how an investigation of Giddens’s theory of structuration led to the identification of relevant themes such as ‘routines’ and ‘rites of passage’ and how a further exploration of those themes brought us to revisit the media studies literature in search of different approaches and perspectives on the topic. The inter-relation of those themes is explored in Chapter Six in the light of the empirical data.

## Section 6: Conclusion

A critical evaluation of my early research agenda reveals that my initial concern with the perceived necessity of a research framework was unfounded. The search for an all-encompassing structure for the data gathering and data analysis processes led to a number of ill-adapted frameworks. It could even be argued that this search had a negative effect on the conduct of the research because it distracted me from the real focus of this dissertation. With time, a deeper understanding of the meaning and potential of interpretive research allowed me to turn my attention away from my initial 'hunt for a framework' and to re-centre my focus onto the real purpose of this research, namely to enter into the research phenomenon of interest and identify and uncover themes of interest and significance there.

This self-analysis allowed me to liberate my research from the straightjacket of a framework (and of a 'framework-based' approach or framework thinking) and to re-orientate my research towards new, firmer ground. Although I did have some themes in mind when conducting the interviews, I mostly let the respondents express themselves, only allowing the initial themes to 'step back' into the conversations when they started drifting away too much or getting out of breath. This method produced very rich accounts, which I chose to present in an un-intrusive fashion, so as to preserve their freshness and originality. As a result, Chapter Five is composed as a narrative, only loosely constructed around the themes identified in this chapter.

The first part of the analysis of the data, as presented in Sections 1 to 3 in Chapter Six, is also loosely built around or connected to those themes. However, the analysis in Chapter Six is also geared towards uncovering (and discovering) new themes and insights into the lives of families around the home computer. Those new 'emergent' themes are presented in Sections 4 and 5 in Chapter Six. Of course, we will see that the emergent themes owe much to the initial work, and that the two 'sets' of themes are woven into a complex web where every idea, new or old, plays a significant role

As mentioned in Chapter Three, this research is not a 'destroying the old and replacing it by the new' exercise, but an iterative and incremental process of challenging the known and exploring the unknown. This dissertation illustrates how this approach leads us to constantly work at integrating and incorporating new insights into a constantly evolving set of ideas that guides us through the research process.

# CHAPTER FIVE: STUDY OF SEVEN FAMILIES

Mid pleasures and palaces though we may roam,
Be it ever so humble, there is no place like home,
A charm from the skies seems to hallow us there,
Which, seek through the world, is ne'er met with elsewhere.
Home, home, sweet, sweet home,
There's no place like home! There's no place like home!

J.H. Payne, *Clari, or The Maid of Milan* (1823 opera)

## Section 1: Introduction

This thesis aims to recreate the lived experience of families around the home computer. Therefore, a particular effort was made to try to let the families 'speak for themselves'. In order to preserve the original 'flavour' of the interviewees' account, I make extensive use of quotes in this chapter. This helps me to avoid altering the specific vocabulary used by the respondents, their expressions and the way they construct their phrases (Scott, 2000).

However, this chapter is more than a series of transcripts. It is a constructed account of what was said during the various interviews with the seven families under investigation. Each family's account is 'lightly' structured around a number of the themes identified in Chapter Four. Within this structure, a first, embryonic phase of the analysis process is performed whereby the most significant pieces of information that may be derived from the interviews are highlighted and briefly commented upon.

Because the seven families interviewed were so different in terms of background, computer usage and motivations and because each family has its own story to tell, it seemed more appropriate to keep them separate, at least until the end of this chapter. Summaries and comparisons have therefore been left to Chapter Six, in which I take a 'step back' and examine the data from a broader perspective.

As mentioned in Chapter Three, the families were located in a very *ad-hoc* fashion. In three of the cases (the Williams, Montenegro and Ahmed families), I knew one member of the family from before, in three other cases (the Crabtree, Sharma and Harrington families), the families were respectively landlords, neighbours and friends of students or colleagues. Finally, I gained access to the O'Leary family with the help of Teresa Sharma who was an acquaintance of Trini O'Leary. In an effort to preserve the anonymity of all the participants, I have changed all the names, the locations and omitted details such as explicit references to companies, schools or other elements that would allow the participating families to be identified.

The majority of the interviews were taped and those that were not were transcribed immediately after my visit to the family. Most interviews lasted between one and two hours, although some lasted as long as four or five hours. As may be expected, only a small proportion of the total interview transcripts has been included in this chapter. A number of observations of the home interior and of activities taking place around or beside the interview (watching television, making tea, falling asleep during the interview) are reported in this chapter. However, those observations are merely used as a complement to the information gathered from the

interview and not as the main source of information as could be expected from a 'real' ethnography.

| | Interviewed members | | Number of interviews |
|---|---|---|---|
| | Children and teenagers | Adults | |
| Crabtree | Hilda | Cassandra, Duncan | 2 |
| Williams | Richard | Daffyd, Jane | 3 |
| Sharma | Maia, Nicola | Bernard, Teresa | 3 |
| O'Leary | Jeremy, Carita | Trini | 1 |
| Montenegro | Carlotta | Ernesto, Mariela | 1 |
| Harrington | Oliver, Noreen, Patty | Gwendolyn | 1 |
| Ahmed | Ehsan | | 1 |

Table 5.1: Overview of the interviews

## Section 2: The Crabtree family

### *Introduction*

I visited the Crabtree family twice, once in May 1996 and a second time in January 1997. I first got their contact number through a student who was their tenant at that time. Duncan and Cassandra live in a semi-detached house in East-London. I did not have the opportunity to visit the first floor where the computer was located. Hilda - Duncan's daughter from a former marriage - spends most of her time with her mother, who lives in another area of East London ("three-four miles from here. May be a little better than [our area]") but comes to Duncan's on Wednesday evenings and during weekends. Duncan is now re-married to Cassandra. Cassandra and Duncan are both very open and seemed to enjoy the conversation each time. Duncan, in particular, seemed happy to talk and eager to communicate his opinion on a variety of topics. The atmosphere during my visits was very informal. I was served dinner with the family during my second visit and was even offered to stay over for the night since the interview had stretched well into the evening.

The first interview was set on a Wednesday night so I could meet Hilda, but she was feeling sick that day and stayed at her mother's. I nevertheless got valuable second-hand information about Hilda that evening. I did meet Hilda during the second interview, at which time she was eight years old. She was willing to talk but started looking bored after a while - perhaps because of the length of the interview, which lasted several hours - and finally fell asleep on a couch.

## *Profile*

| | | | | |
|---|---|---|---|---|
| Name | | Duncan | Cassandra | Hilda (daughter of Duncan) |
| Age at the time of the first interview | | 44 | 33 | 7 ½ |
| Nationality | | English | German | English |
| Occupation | | Upholsterer ("there's a workshop in the house") | Secretary, PA, translation, desktop publishing | N.A. |
| Education | | 3 GCSE | 12 O-levels, language diplomas | N.A. |
| Description of the home | | Semi-detached house with garden in East London | | |
| Marital status | | Divorced and re-married | Married | |
| Present? | Interview no. 1 | Yes | Yes | No |
| | Interview no. 2 | Yes | Yes | Yes |
| Additional information | | N.A. | Lived in Germany until 88 Spent several years in India before moving to London. | N.A. |
| Computer and related equipment present in the home | | Apple Macintosh, acquired (second hand) in 1990.<br><br>Laser Jet printer. | | |
| Computer use | Leisure | N.A. | Games: Shanghai, pyramids, solitaire | Games: Freddy the Flea, Mario Games, racing carts, Poker;<br><br>Looking for phone numbers;<br><br>Drawing. |
| | Work | N.A. | Helping Duncan with his business:<br><br>Accounting (spreadsheets);<br><br>Stationary (letterheads and compliment slips). | N.A. |
| | Education | N.A. | N.A. | N.A. |
| | Family duties | N.A. | N.A. | N.A. |

Table 5.2: Profile of the Crabtree family

***Description***

Hilda uses computers both at her mother's and at her father's home. She also has access to computers at the home of the friends she visits and at school. Hilda's involvement with computers revolves mainly about computer games, which she plays at her mother's and at her friends' house. However, her interest towards computer games is limited, as the following excerpt reveals:

> LH: So what do you play with David?
>
> Hilda: Mario games. Sometimes in some games he wants to go on and on. But I want to give up after half an hour.
>
> LH: So what do you do then?
>
> Hilda: I just leave him. He plays by himself. I just go off.

In addition, she is involved in a number of less common computer-related activities: she plays around with Cassandra's personal organiser ("she looks for phone numbers") and she occasionally corresponds with other children over the Internet. However, her descriptions of her computer activities are generally vague. For example, she is unable to recall the nationality of the children she corresponds with and the content of their conversation.

> Hilda: I talk to a 12-year old.
>
> Cassandra: She's corresponding with other children.
>
> Hilda: We write on the screen.
>
> Cassandra: Who do you get letters from?
>
> Hilda: We don't get letters.
>
> Cassandra: Well, messages or whatever you call it.
>
> LH: Where are those children from?
>
> Hilda: Don't know.

LH: What do you talk about with them?

Hilda: Can't remember.

It may be interesting to note that Hilda perceives the computer at her mother's place as being 'hers'. In her eyes, Bennett, her mother's new partner, uses 'her' computer 'when she is away', but he has to ask her permission first.

Hilda: Bennett is kind of interested in my computer. He more or less plays with it.

LH: When does he play with it?

Hilda: When I'm away. Sometimes when I'm cooking. He comes and asks me.

Cassandra is in her mid-thirties. She is German but has spent a large part of her life outside Germany: she has lived in India for a few years before moving to London where she met and married Duncan. She still keeps some contact with her family in Germany (her sister was to come and visit, for example) and advertises in Germany for tenants. She worked in a large international corporation for some time but was made redundant in the early 1990s. It seems that she has been 'temping' since then. At the time of the interviews, she is working full time, probably for financial reasons ("I *have* to work full-time now" – emphasis added).

Cassandra was first introduced to computers by a boyfriend.

Cassandra: A boyfriend of mine was an astrologer. He had an astrology package. That's when I first really used a computer.

She appears to be the main computer user in the household. Her use of the home computer seems to revolve chiefly around the work she does for Duncan's business, including the accounting and the design of business correspondence paraphernalia.

> Cassandra: I used to use Hypercard but not any more. I also do Duncan's accounts on Excel. I also redid his letterhead paper, and the compliment slips.

The amount of time that Cassandra reports she spends on the computer varies from fifteen minutes to half a day, depending on the amount of work required. Nevertheless, Duncan's business was not the reason why Cassandra acquired the computer

> Cassandra: I didn't think I would use it for Duncan's business

Cassandra is aware of the possible problems associated with computer use in and outside the home. In particular, she is reluctant to transfer data from her workplace onto her home computer because of the perceived danger of viruses.

> Cassandra: […] Did I tell you I'm working for [name of the company] at the moment and you wouldn't believe how many times computer viruses come in through e-mail messages. We had the show-off virus, the concept Jay… there's all sorts of viruses. I have this software, every time I have a virus, I get this horrible bug creeping on my screen, really ugly actually. So there's no way I'm going to take a diskette from work and bring it here.

Nevertheless, she is generally positive regarding information technology and the home computer. She reports experiencing a definite feeling of 'enjoyment' when talking on the phone or using the computer.

> Cassandra: I use First Direct. I'm very happy with it. I *like* talking on the phone. I wouldn't mind doing more things. Like, if I wanted an airline ticket, I would *enjoy* going through the system myself, I think [emphases added].
>
> [...]
>
> Cassandra: I really like working with the computer. It's like a good friend.

Cassandra mentions that, although she is not actively seeking to switch from an office-based job to home-employment, she "wouldn't mind" working from home. She remarks that she does not "know about the scene".

Duncan is British, in his mid-forties, and comes presumably from a working-class background. He works as a upholsterer. Most of his work is done in a workshop situated in the ground floor of the house but he is also involved in the supervision of students' projects at various colleges. He seems to be enjoying the lifestyle that his job allows him to have and mentions twice that this lifestyle would be different if he had another, more 'conventional' type of job.

> Duncan: […] I don't read the papers, not really. They don't make me feel good. I know it seems a bit narrow, short-sighted... ignorant even, but... If I was a businessman in the City, I would read them, to know what's going on.
>
> [...]
>
> Duncan: […] There's no great stress. I could be an agent for a company selling an item. But I don't feel any great need to put myself under stress. We do mix with people, plenty of good conversations with other people.

Duncan and, to some extent, Cassandra seem to have a relatively relaxed conception of time and time utilisation.

> Duncan: I'm used to work when I want to, work through the night and sit in the garden during the day.
>
> Cassandra: We don't have any working pattern. Some times it's very intensive. Other times, it's more relaxed.
>
> Duncan: Sometimes I work in the middle of the night. It depends what I have got.

This relaxed conception of time seems to be embedded into a much wider philosophy of life, whereby stress and pressure are to be avoided when possible.

> Duncan: Like this morning, I dropped her [Hilda] off, then I read some Shakespeare, then I worked into the workshop. There's no great stress. I could be an agent for a company selling an item. But I don't feel any great need to put myself under stress.

Duncan's ability to keep his timetable flexible allows him to participate in some of Hilda's school or extra-curricular activities.

> Cassandra: Sometimes Duncan goes there and helps out with Christmas decorations and things or when they go on an outing in the park and the need extra adults.
>
> [...]
>
> Duncan: I've taken time out. For example: snow on the ground, bang! I was out, we were there and her [Hilda's] little friend was there.

Duncan admits himself that he has little involvement with the home computer.

> LH: How often do you have conversations about computers?
>
> Duncan: Cassandra is the computer expert. She's also good in the kitchen. I'm the maintenance man.

However, part of the conversation reveals that he is not completely disinterested in computer issues. He used to browse through computer magazines and shows some interest in buying a laptop and getting connected to a network.

> LH: Do you buy computer magazines?
>
> Cassandra: We used to have a lodger here. He used to subscribe to Mac User. I never looked at it.
>
> Duncan: Well I looked at it. I'd like a laptop.
>
> Cassandra: Do you?
>
> Duncan: Well, I'd like to find out more about it.
>
> [...]
>
> Duncan: I think it would be nice to have access to a network.

He also comments on Cassandra's use of the computer.

> Duncan: You tend to under-use it, though.

Duncan is conscious of the existence of problems at Hilda's school, in particular as far as computer provision is concerned.

> LH: […] about Hilda, does she use the computer for schoolwork?
>
> Duncan: The computer system she has at school is completely antiquated, it's like ten-twelve years old. I did speak to the headmaster and I told him: "You could get new computers!" but he says they wouldn't be compatible.
>
> [Later]
>
> Duncan: The equipment that she has in her school is probably fifteen or twenty years old.

It is interesting to see that the school equipment that appeared to Duncan to be "ten-twelve years old" suddenly becomes "fifteen or twenty years old" less than a year later.

Hilda and Cassandra also mention the problems that Hilda's school experiences with computers.

> LH: Do you have a computer at school?
>
> Hilda: We've got a computer in our room. It only got repaired yesterday.
>
> Cassandra: They did this jumping competition to raise money for the computer.

Although his wish to get his daughter a good education includes acquiring computer-related skills, Duncan appears to be expressly hostile towards information technology as a society phenomenon.

> Duncan: I think there is a Renaissance at this stage but I don't think information technology is part of the Renaissance yet.

He elaborates on Cassandra's experience of computers at her workplace.

> Cassandra: And I just found out today that some of the projects are not year-2000 compliant. Those people are going away on retirement in a few years time. They don't really care. They have thousands of different systems not compatible with each other.
>
> Duncan: It's just a representation of their state of mind. I don't think the Western world has the right approach to the mind. We don't see it for what it is, we personalise it so that we can get the individual to be immortal. There's no individual. The Western world creates individual dreams. I want, I want, I want, all the time. It's a dream. Now, if you turn that into I serve, I serve, I serve...
>
> Cassandra: ...it makes the society rich.
>
> Duncan: 'I want' it's the word we're using all the time.

His scepticism towards technology is apparent when he comments on the negative influence of computers and television on children. When he describes the anti-social behaviour of a friend's son, he blames it partly on the fact that he is allowed to spend "too much time" playing with the home computer.

> Duncan: We have a friend whose son is partially deaf. He always draws the same picture. He's been allowed to spend too much time on the computer if you ask me…. He can get very angry. He's in that world of his. He's not in touch with other people's feelings. That, I think, is the result of both the computer and the hearing problem.
>
> [...]
>
> Duncan: The TV would have quite a profound effect on those teenagers going out murdering each other. Don't tell me they don't get that from the television.

Duncan likes to refer to his own childhood to illustrate his point.

> Duncan: Well, coming back to your computer thing, I must say I'm amazed to see what happens with computers and television and ... I remember, when I was a child, I was more interested in playing football. Before we had the TV,

> we would listen to the radio and we'd be much more engaged with it. People would sing along. Once you get someone's sight you take it all. We were much more engaged as a family. I would imagine that if my parents were alive we would see a lot of them.
>
> [...]
>
> Duncan: Before we had the TV I remember having more vivid imagination. When you have a story read, things like the Children of the Amazon...
>
> [...]
>
> Duncan: I didn't really need books or TV because my life was exciting in Hackney, there was a river and marshes. We would be on our bikes. We would go in the night and steal drums. We made the most amazing tree house. We'd have spears, bows and arrows. That was wonderful. There was no TV.

The Crabtree family seems to be on relatively good terms with Hilda's mother and with her new partner, Bennett, both of whom work in non-profit organisations. However I did not have the opportunity to interview them and only have second-hand information about them. Bennett's relationship with the Crabtree family interests me particularly because many of his dealings with the family are computer-related. He seems to be involved with computers at work or at least to have been at some point.

> Cassandra: Bennett, he's the new boyfriend of Hilda's mother, he's an IT man.
>
> Hilda: Expert!

Cassandra relies on Bennett's help and advice regarding home computer matters. She either calls him or waits "for him to come round" whenever she is experiencing a problem with her home computer. He also provides Cassandra with updated software.

> Casssandra: […] He [Bennett] has an Apple Mac. He comes around sometimes and updates things. He's looking into networking. I'm interested but I want to get together with him and talk about it. He's the person I usually ask.

Bennett is also involved in Hilda's dealings with the home computer at her mother's place.

> Hilda: Bennett is kind of interested in my computer. He more or less plays with it.
>
> LH: When does he play with it?
>
> Hilda: When I'm away. Sometimes when I'm cooking. He comes and asks me.
>
> LH: Does he sometimes play with you?
>
> Hilda: Yes, sometimes.
>
> [...]
>
> Duncan: Are you sure you do that at all? You're not making that up?
>
> Cassandra: Yes, she does, Bennett told me. But only when he's around.

When trying to elicit the rules and norms regarding computer use in the Crabtree family, one is confronted with a two-faced situation. On the one hand, there is a rule concerning the amount of time Hilda is allowed to spend on the computer. When Duncan is specifically asked about the amount of time Hilda is allowed to play on the computer, he provides a very confident answer.

> Duncan: She plays games a lot at home. If she wasn't limited to the amount of time, she'd play more, I'm pretty sure about that.
>
> LH: How much is she allowed to play?
>
> Duncan: The time between coming home from school and six o'clock.

On the other hand, such a rule seems particularly difficult to enforce when no adult is around to monitor Hilda's computer use.

> Cassandra: She plays at her Mummy's and she's not always there.

Another illustration of the vagueness of rule implementation in the Crabtree family may be the different answers given in response to a question about the weekly amount of pocket money given to Hilda.

> LH: Does Hilda have pocket money?
>
> Cassandra: Yes, she's got as much money as she likes. She likes to change up coins with higher currency. I wouldn't be surprised if she changed up to £15 a week…
>
> Duncan: No, it can't be that much. She gets £2 from me and £2 from her mother.
>
> Cassandra: Oh, she always manages to get change from people somehow…

However, we have to remember that the Crabtree family is not particularly rule-oriented.

> Duncan: We have two lodgers. They're very nice. Sometimes we have meals together, but there's no real rule. Sometimes they cook for us.

Duncan, in particular, seems to be hostile to the idea of "being told what to do".

> Duncan: When I got the organiser, I threw the manual away. I don't like being told what to do.

Cassandra herself, although she seems to be relatively well organised as regards Duncan's business, does not show the same enthusiasm when it comes to the household accounts.

> LH: Do you usually budget other expenses?
>
> Cassandra: I try. But I find it too depressing. I tried to write down the earnings and spendings for a while. I was always surprised.

Although the Crabtree family appears as a fairly harmonious, one can uncover some hidden conflicts. For example, there seem to be some underlying tension

about the use of space, at least as far as the computer is concerned. When Cassandra moved into Duncan's house, she brought the computer with her and installed in on Duncan's desk. Duncan may have appeared not to mind at the time but does voice some resentment when the topic is mentioned during the interview.

> LH: Where is the computer located in the home?
>
> Cassandra: It's in the bedroom, on the desk.
>
> LH: Did you have to remove anything in order to install the computer?
>
> Cassandra: No, only paper.
>
> Duncan: She took over the desk. It was my desk.
>
> Cassandra: Well, we're married, we're sharing.
>
> Duncan: I've got this much space to work now.
>
> Cassandra: When I moved in, there was such a mess there. I had to remove all that and store into the attic.
>
> Duncan: You had to?

Throughout the two interviews, I could feel that money was somewhat scarce within the household although it was not really said overtly.

> Cassandra: We don't have the money at the moment. It's a pity because she really likes riding.
>
> [...]
>
> Duncan: We used to have a piano here. But I can't afford it now.

***Concluding comments***

The Crabtree case study offers many interesting insights into the status that may be attributed not only to the home computer but also to those individuals who display specialist knowledge about its workings. It will also allow us to gain a deeper understanding of the relationship between the domestic sphere and the world of

work and corporate culture ‘via’ the home computer. We will also see that Cassandra and Duncan’s concerns regarding Hilda’s present and future ‘relationship’ with the home computer present some similarities with the concerns of other respondents in the other case studies.

## Section 3: The Williams family

### *Introduction*

The Williams are a middle class family living in Plymouth. Daffyd and Jane have one son, Richard, who was a resident in my student hall between 1994 and 1997. I first started gathering information about the use of home computers in the Williams family from Richard through casual conversations and asked him later if he wanted to participate in a few more formal interviews. Those interviews took place in 1996 and 1997. Afterwards, I had the opportunity to meet his parents and to interview them, once in London in 1997 and a second time at their home in Plymouth in 1998. I encountered no problems in approaching them but this may be due to the fact that I knew their son ("we're always glad to meet Richard's friends"). They were extremely friendly when I came to Plymouth to visit them, picking me up at the station, and showing me around the city after the interview.

The core of the family is relatively small (father, mother and son), but they seem to have close links with other members of a more extended family (such as Daffyd's brother and brothers-in-law or Jane's mother). Although Richard studies then works in London during the week, he returns home every weekend and is involved in his mother's and several other orchestras in the Plymouth area.

***Profile***

| Name | | Daffyd | Jane | Richard |
|---|---|---|---|---|
| Age at the time of the first interview | | 52 | 53 | 21 |
| Nationality | | Welsh | English | English |
| Occupation at the time of the first interview | | Teacher | Teacher | Student (BSc) |
| Education | | Degree in Applied Physics | Degree in Mathematics | A-levels |
| Description of the home | | Semi-detached house with garden in Plymouth | | |
| Marital status | | Married | | Single |
| Present? | Interview no. 1 | No | No | Yes |
| | Interview no. 2 | No | No | Yes |
| | Interview no. 3 | Yes | Yes | No |
| | Interview no. 4 | Yes | Yes | No |
| Computer and related equipment present in the home | | IBM 086.<br><br>BBC Micro B (bought in the early 1980s; has not been used since 1986).<br><br>Dell Pentium computer 90 MHz., bought new in March 1994.<br><br>Two speakers.<br><br>Cannon bubble-jet printer. | | |

<table>
<tr><td colspan="2">Name</td><td>Daffyd</td><td>Jane</td><td>Richard</td></tr>
<tr><td rowspan="5">Computer use</td><td rowspan="2">Leisure</td><td>Computer games: Patience, Mindsweeper;<br><br>Internet (news, research);<br><br>Word-processor (Bible study);<br><br>Programming;<br><br>E-mail (friends, relatives);<br><br>Music (composition package and CD-ROMs)</td><td rowspan="2">Word processing and databases (duties as orchestra manager).</td><td rowspan="2">Computer games: Patience, Mindsweeper<br><br>E-mail</td></tr>
<tr><td colspan="2">Word-processing (Christmas letter)</td></tr>
<tr><td>Work</td><td>Word-processing (CVs and cover letters, lecture notes, exam papers);<br><br>Internet, e-mail (job hunt).</td><td>Word-processing (lecture notes, exam papers);<br><br>Spreadsheet (preparing for practical classes).</td><td>N.A.</td></tr>
<tr><td>Education</td><td>Programming.</td><td>N.A.</td><td>Word-processing (essays).</td></tr>
<tr><td>Family duties</td><td>Spreadsheets (tax forms for Jane’s mother).</td><td>N.A.</td><td>N.A.</td></tr>
</table>

Table 5.3: Profile of the Williams family

***Description***

Daffyd is a Middle School teacher in his mid-fifties. Although he has spent 25 years in Plymouth, his Welsh origins seem to be of some importance to him. For example, he regularly keeps up-to-date with the news from South Wales ("who married whom in our little valley") through various media, i.e. Teletext, newspapers, Internet as well as phone contacts with friends and relatives. Daffyd's career did not follow a very ordinary path. After obtaining a Degree in Applied Physics in the early 1960s, he entered the Ministry of Defence as a design specialist. He left this job in 1982 to become a secondary school teacher. Although we did not discuss the motives behind this decision in great detail, I gathered that this career move was made partly on ethical grounds. ("The things I did in the past, I killed most of the people in the world, that sort of things, war game, crazy stuff." "I thought I had something to give to kids. As I said, I killed most of the people in the world, not physically, I worked out how to… And it sort of went on from there.")

However, his teaching job has been a strain both on his morale and on his health ("I had enough. I struggled through. My health broke last year and… I don't want to go back there"). He did not provide any detail about his health problems but I gathered some information through Richard in an earlier interview ("He was stabbed last week with a fountain pen. A kid at the school. […] And he was hit last year as well so he's had enough."). In addition, he has applied for early retirement ("if you take it through ill health then they increase the years of your pension scheme").

The career path followed by Daffyd is of particular interest to me for the purpose of this thesis because it is closely interwoven with his computer knowledge and interests. According to Jane, his interest in computers dates back to his time at university ("he's always been interested in computers... right from college days"). However, one can presume that it is through his job in the defence field that Daffyd acquired most of his computer knowledge and developed his programming skills. Throughout his career as a teacher, he tried to keep up-to-date with the development in computer technology, studying for a Masters in Information Technology, reading computer magazines, purchasing a computer and upgrading it.

Daffyd's use of the computer is very varied, including word-processing, building databases, surfing the Internet, e-mailing and programming and fulfils a variety of purposes, ranging from work to leisure. Among those various computer activities, programming seems to be of major importance to him. His interest in programming is manifest when he discusses the relative usefulness of various programming languages and his personal preferences. Richard's fairly accurate description of his father's computer skills is an indication that Daffyd mentions the subject fairly often in his conversations with his son.

> Richard: He's not an information technologist, he's more a computer scientist, i.e. he's a programmer, he learnt computer when he didn't have any software, if you wanted it to do something, you had to write the programme yourself. So he knows Pascal, Basic, C, Fortran, other sort of out-of-date languages because he started in the late 60s.

Daffyd's efforts to keep up-to-date with the world of programming are tempered by his personal preferences for older languages such as ALGOL or Pascal.

> Daffyd: I've now got a C++, which is interesting, but I'd still rather work in Pascal. Well, I'd rather work in ALGOL 60, but that was 38 years ago. You can talk yourself out of ALGOL 60. You could still talk yourself out of Pascal. But if you get into a problem in C++ it's more difficult, if you don't put all your little sentences in to tell you what bits the programme does.

Indeed, Daffyd describes himself as being from the "old school":

> Daffyd: I'm not an up-to-date software engineer.
>
> [...]
>
> Daffyd: [...] Would you believe it? My first programme was written in binary. We used punch tapes and punch cards. According to a lecturer of mine, I should keep every one of them. I had brought some. He took them and said "these are like gold". You know, I used to read punch tape, like you'd read a book…
>
> [...]
>
> Daffyd: You know, the programmes that were written in the past were very precise. But they were written by somebody for themselves. They had very few remarks. I still don't use them. If I did, it would be for somebody else.

Daffyd does not seem to have any use for e-mail in his job as a teacher but does use it to send curriculum vitae to "various agencies".

Daffyd's use of the word-processing for some of his correspondence is motivated by the wish to keep copies of official letters he sends out (for example to the hospital).

> Daffyd: Last one I wrote was to deal with the hospital, you know, so you not only have a hard copy for yourself, you've got it on disk and you've got the time and date when this particular file was done, unless you've erased it.

There are several indications that Daffyd helps other members of his family with their work or job-related tasks. For example, he mentions a programme he wrote to

help Jane solve one of her mathematical problems and "gave her a lot more than she asked for".

> Daffyd: […] She [Jane] came home from work, she's a teacher, was it last week or the week before? "What is the next number in this silly sequence?" So I went upstairs and about ten minutes later I came down with a programme written in Turbo Pascal which gave her the number and gave her a lot more than she asked for.
>
> LH: That was for examinations?
>
> Daffyd: That was for an A-level maths project. She worked out the number, it gave her a second number, so she was able to work out the sequence of numbers and solve the project as such.

Another story related in the interview, this time by Jane, provides another example of how Daffyd's computer abilities can be put to use for another member of the family.

> Jane: […] Daffyd tried to use it for something for my maths and didn't get anywhere.
>
> LH: What was it?
>
> Jane: Well, I wanted some information, an A-level student had done a project sort of problem solving type of project, which is supposed to be all his own work. And I didn't think it was his own work. And I was trying to find out where it came from. And he gave me... I asked him whether he had used a book, he said "yes", he gave me the title of the book, which proved to be a false title, so that put me off. And it took me ages to get hold of the book through the Library. And when I got hold of it I saw it wasn't at all what I wanted. But in the meantime Daffyd and I looked for this book on the Internet. The book was listed. We tried to look up information on that. We got 2,000 entries. So Daffyd and I looked at about five of them, and they weren't what we were looking for so we stopped. A solution of the problem he could have copied, that's what we were looking for. We gave up. It was going to be too costly to go on forever on the telephone, on the Internet charges looking for that.

It is interesting to note that the example quoted by Jane is a semi-failure, whereas the example related by Daffyd is more of a success ("I went upstairs and about ten minutes later I came down with a programme written in Turbo Pascal which gave her the number and gave her a lot more than she asked for").

Daffyd also assists his brother in his attempts to build a web site for his Church.

> Daffyd: Last year he [my brother] set up his own church's web site. So he e-mails me to get in and tell him what's wrong.

Daffyd uses his computer skills to help members of his family with administrative tasks. For example, when I visited the family at home, Daffyd was drafting Jane's mother's tax declaration on Excel.

> Jane: What happened is that, fortunately, Daffyd, because he's got a computer, when they sent us the form for us to sign and say it was correct, he made a copy of it, last year, so he's modelled it on that. He's just changed all the figures from last year to this year.

Some of Daffyd's programming activities tend to be more leisure-oriented. For example, he has built a lottery simulation programme that was originally intended to help him choose what numbers to play for the national lottery but the programme turned out to present a series of problems.

> Daffyd: […] I found out various problems with the Lottery. My initial idea was 1 to 49 nodes intersecting, so if you hit the probability to go to node 50, you could then calculate the probability to go to node 1. It was a sort of cylindrical programme. Obviously what you need is a spherical programme. Do you understand that? You need a spherical programme so it wouldn't go from 49 to 1. It would go from 49 probability to 5 or to 25 or rather than 1… But the cylindrical programme is lovely, but the numbers don't come up.

Some of the programmes that Daffyd writes do not have any apparent purpose other than being a challenge. For example, in both interviews, he relates a story about a chaos simulation programme that he wrote in Pascal after having seen a demonstration of it on television.

> Daffyd: I saw a programme on chaos on TV. The guy was showing a programme he did and he was saying "it took me four years to develop this programme". I went up and started fiddling around with the computer and after a couple of hours, I had it running, the same thing. And it took him four years...
>
> [...]
>
> Daffyd: Couple of years ago there was a chaos programme on the telly. You see wonderful little triangles and spots coming up if you remember that basic programme, so within ten minutes in Pascal I ended up with a little programme working nicely. Then I sort of three-dimentionalised it and multiple-coloured it and… you just simply expand it to see what you can do with it.

Interestingly enough, the amount of time Daffyd reports having spent on the programme shifts from "a couple of hours" during the first interview, to "ten minutes" in the second interview.

Daffyd's use of the Internet covers a range of tasks and interests. First and foremost, it seems that the Internet allows Daffyd to keep up-to-date with scientific research in his area.

> LH: What do you use the Internet for?
>
> Daffyd: Browsing, but not just browsing. Information also. I'm a physicist and… I use it to get interesting information.
>
> LH: What kind of information?
>
> Daffyd: Like finding if anyone else has had the same idea as I had. That's interesting. But there's so much out there, so much…
>
> [...]

LH: Could you give me an example of a search you would do?

Daffyd: I'm looking at white noise, doing searches on what's been written about white noise.

Daffyd has tried looking up the Internet when he needed practical information about train schedules and reports that his attempts did not succeed. But he does search for news on the Internet, mostly to complement the information he gets from Teletext.

LH: How about news? You were using Teletext. Do you still use Teletext or you prefer the Internet?

Daffyd: Oh I look up both. Here on Teletext you get mostly UK news and the odd disaster, you know in Papua New Guinea last week, that sort of thing. If you want different… if you're interested in different countries then it's best to go on the Internet. 197, it used to be the Welsh news, but now they've taken it away so I can't get my news from South Wales at all.

LH: And can you get them from the Internet?

Daffyd: Yes, it's www.westernwales.com or something like that. It's a local paper down there.

Although Daffyd maintains that they are "not that religious", he and Jane do go to mass every Sunday and are involved in a Bible study group that meets weekly. Because he sometimes has trouble following the thread of the discussion ("my concentration is not that good"; "at the Bible study group, it has all this quoted but you then end up with a Bible and you are sort of looking for this one and looking for that one, and… I get lost half way through. So I'd been looking for something and by the time I found it, I forgot what I'm looking for"), Daffyd does some preparatory work beforehand. Such work involves downloading information from

the Internet as well performing searches with the help of his word-processing package.

> Daffyd: What she did downstairs, she went to a Bible study class and got me involved in it. So I found a Bible on Gateway on their web site, and you're only allowed to copy 50 verses at a time, so I visited this site many, many, many times. I copied 50 verses at a time. So I now got the whole of the Bible down to the New Testament, with all the references, New Testament, Old Testament. […] So what I did, if the book says "Chapter 3 verse 29", all I did is lifted them up and copied them in. So I then produce a piece of paper with one particular evening's quotes. […] So I do it this way. All I do is use "find" [the find function in Word], like "find: Luke chapter 16" and bang, it finds Luke chapter 16.

Daffyd's interest in the Bible is not exclusively related to his religious pursuits. He mentions that Richard offered him Michael Drosnin's book *The Bible Code* ("the secret codes of the Bible, the Torah and the prophecies of Diana's death and all the rest of it…"). Daffyd seems to have been enthused by the book ("once you get into it, it's quite hard to put it down") and discusses the practical implications of building a computer programme aimed to discover secret messages encrypted into a text.

> Daffyd: If you put it all in an Excel file and go searching for words and actually look at how those words fit in… You know the word searches they have in the papers… you write a programme which will actually do it for you, it depends on how big your basic cell is, that sort of things. It's all to do with probability and if you get a big enough basic grid, you can prove anything.

Although Daffyd seems to enjoy using the Internet, it is not a trouble-free activity. Problems such as data security and integrity have cropped up, in addition to budget concerns (the issue of budget will be discussed in more detail in Chapter Six). For

example, the issue of viruses propagating through the Internet pops up more than once during the conversation.

> Daffyd: I needed to download some software which runs a programme which would interpret presumably the code. I don't like doing that because of nasty viruses that might accompany them. Not fun. Viruses are not fun.
>
> [...]
>
> Daffyd: That's what I'm worried about whenever I've got an Internet: "Do you have a Cookie?" No, I'll never have a cookie, ever. And they only started them recently, the last 6 months or so, when you get into a particular web site and they say it might not read properly, blah, blah, blah … I always say no. I don't know what they'd do if they were wrong. One thing I really don't want to do is to actually have to start loading everything up from scratch again. My brother did it once and that took him about an hour, to start from scratch.

The example of how the virus check is operated in the Williams family offers some insight into the way members of the family "negotiate" the use of the computer. Daffyd's concern about viruses leads him to perform systematic checks whenever a new disk is to be read.

> Daffyd: But every time, I make it a point, every time I put a new disk in, if somebody sends me a disk, it wouldn't touch the computer, I'd be running MSAV before.

This "rule" or "policy" seems to be followed quite faithfully by Daffyd himself and by Richard whom Daffyd "trusts to run the anti-virus". Jane, however, does not follow this rule very scrupulously ("she'd say "what are you doing that for?""), which led Daffyd to take action, instituting a routine according to which he takes under his responsibility to check Jane's disks before she uses them on the home computer.

> Daffyd: And when Jane brings one home from school, then I have to run the anti-virus. I have to take it off from her, stick it in, run it and she'd say "what are you doing that for?"

His choice of vocabulary ("I *have to* ...") suggests that he perceives his wife's lack of concern regarding computer viruses as an extra responsibility on his shoulders.

Another concern of Daffyd's regarding information technology relates to what he perceives as a lack of censorship on the Internet. He relates his brother's research on pornography on the Internet and his lobbying at the DTI in that matter.

> Daffyd: [...] My brother, Richard's uncle, is a Baptist pastor. He's become very consumed about how easy it is for children to access pornography on the Internet. He's a member of, what is it already, the National Baptist Association or something. He's been in contact with London a lot, the Board of Industry.
>
> [...]
>
> Daffyd: […] You wouldn't believe how much of that stuff is freely available on the Internet. You would think that you'd have to pay for it.
>
> LH: I thought you had to pay for most of those sites...
>
> Daffyd: Oh no, a lot of it is free… So my brother wrote an article about it and presented it to somebody who's at the DTI. I don't know what kind of response he had. But, really, the amount of things available on the Internet...

Daffyd's relationship with his brother and other members of his extended family are explored in more detail in Chapter Six.

Daffyd insists that, for him, the computer is not an end in itself.

> Daffyd: I've been working with computers since 1964 and I can tell you, it's only a tool to do other things.

However, it would probably not be presumptuous to propose that the home computer means much more for Daffyd than it does for Jane or for Richard.

Various indications are given throughout the four interviews that his interest in computers outgrows that of the two other members of the household and that his opinion generally prevails when it comes to make a decision over computer matters.

> LH: Do you ever have conversations about computers in the household?
>
> Richard: Not really conversations. It's rather: my father talks about it and we listen.
>
> LH: How often does that happen?
>
> Richard: Oh, he mentions the computer at least once a day.
>
> [...]
>
> LH: Do you buy computer magazines?
>
> Richard: *My father* bought PC Direct when *he* was in the process of buying a PC, to find out what was on the market, but not any more. *He* must have bought about a year's worth of PC Direct. [emphases added]
>
> LH: Did you or your mother read it when your father bought it?
>
> Richard: My mother?... no, she wouldn't be interested.
>
> LH: How about you?
>
> Richard: Me? I used to browse through it… sometimes.
>
> [...]
>
> LH: And how was the decision made in the end?
>
> Richard: *He* decided in terms of cost and also in terms of how big the company is. [emphasis added]

Daffyd's activities around the home computer also involve members of the extended family, such as his brother and brother-in-laws. For example, he corresponds with his brother regularly through e-mail as well as thought the fax machine.

> Daffyd: He [my brother] just e-mailed me some pictures that he took during his grand-daughter's dedication at the Baptist church, like Jane with the baby, that sort of things.
>
> [...]
>
> Jane: Daffyd used to write to his brother and occasionally to send some information if he wants it to get quickly or he uses fax instead, we've got fax on the computer.

Daffyd has also helped his brother setting up a web site for his parish.

> Daffyd: Last year he set up his own church's web site. So he e-mails me to get in and tell him what's wrong. He ran into a problem getting comments back. He has this little page which says "fill in this little bit and press go" and it wouldn't work. [...]

His interaction with his brother-in-law seems to revolve around software sharing arrangements.

> LH: Do you have much contact with your brother-in-law?
>
> Daffyd: We didn't. We lost touch a bit. And he now sends me CDs with various bits on games and that sort of things that he's got from... It's quite good actually; it's quite reliable as well. But as a policeman, he shouldn't do anything illegal.
>
> [...]
>
> Daffyd: He [my brother-in-law] was issued with the Windows 98 Beta version, because his brother-in-law is disabled. He did lot of … fast motor boat race and he flipped over during one race and went over his back and he can't move anymore so he gets all sorts of things given to him by the firms to try out. I think my brother-in-law got his Beta version of 98 from him, as it were.

In particular, one of his brother-in-laws acts as an intermediary between Daffyd and "his brother-in-law from the other side" who owns a CD writer and is therefore able to burn CDs upon Daffyd's request. It is interesting to notice that, although Daffyd

has “never met” this relative, he uses several of his ‘tailor-made’ CDs on a regular basis.

> LH: So the disks go from one person to another in the family?
>
> Daffyd: Yes, well it usually stops at me. The last CD he sent me, he gets from the his brother-in-law from the other side, who I never met, he’s got a CD writer, so he says: “I want this that and the other” and he puts together that package, that package and that package, puts it on the CD and sends it off to me.
>
> [...]
>
> Daffyd: Oh this one [CD] was the one that was cut by Andrew’s brother-in-law, this one’s got all of C++, Paintview, Simply Personnel, Quick Field, Filemaker Pro and Quickdelete.
>
> LH: And he made it himself?
>
> Daffyd: Yes, he cuts them. He’s got a CD writer.

There are also some indications that Daffyd’s opinion about computers and technology in general is shaped by his observations of his brother’s and his brother-in-law’s experiences.

> Daffyd: One thing I really don’t want to do is to actually have to start loading everything up from scratch again. My brother did it once and that took him about an hour, to start from scratch.
>
> [...]
>
> Daffyd: And I didn’t go for Windows 95 because my brother-in-law had one and he had problems with it... [...] like software not running and these sorts of things. In the end he sorted it out, it took quite a long time.
>
> [...]
>
> LH: Would you do banking on the Internet?
>
> Daffyd: Oh, I might be convinced about doing that, I might get convinced about doing that. I don’t even use the hole in the wall. I mentioned before, my brother was a missionary in Nepal and all his cards had to go into the embassy

> in Kathmandu, which is the capital of Nepal. And all of the sudden his bank in London: "you've used the hole in the wall, so much money on such and such a date" and he wrote back and said "I've been in Nepal". And they wrote back and said: "sorry we are sure that you took the money out" so he then got the receipt from the embassy in Nepal that the card was in the safe, it took them about 9 months to say "we've made a mistake". Banks never make mistakes! It's so easy if somebody's got access to one's bank account for the money to just disappear.

Jane, also in her mid-fifties, is a secondary school teacher in Plymouth. She was born in Liverpool and moved to Plymouth immediately after graduating from the University of London in Mathematics. The amount of information I managed to gather on Jane is relatively small compared to what I got about Daffyd. This may be due to two main reasons. First, Richard talks mainly about his father when he's asked about his family. Second, when interviewed with Daffyd, Jane tends to be less talkative than her husband. Jane's main activity outside her job seems to be her work as manager of the Plymouth Symphony Orchestra.

Jane mentions several times that she does not use the computer much.

> Jane: I don't use it very much.
>
> [...]
>
> Jane: I don't really use the computer much at all.
>
> [...]
>
> Jane: It's useful for certain things, I'd miss it for those sorts of things, but I don't really use it very much.
>
> [...]
>
> Jane: I don't use any of it, I wouldn't know where to start.
>
> [...]
>
> Jane: Richard plays a bit. I never do. I would find it too frustrating.

In spite of this feigned lack of interest, she does use the computer for a variety of purposes. In particular, she uses the word-processing and graphics packages on the home computer for some of her work as a teacher. Jane teaches 9th-grade computer classes that she may prepare at home or at school, depending on what software is to be used. She mentions that one of the programmes she has to use in her classes has not been installed on the home computer and that she therefore has to do her preparatory work at school for this part of the curriculum.

> LH: If you have a computer class to prepare, would you do the preparation at home or at school?
>
> Jane: Oh, I sometimes try it out at home as well as at school, if I've got the necessary package, for example, one thing we've done at school always in the past is LOGO. We haven't got that here. So I can't do that. But spreadsheets, I come home after school and I try it out to make sure I can remember how to do various things

Jane's duties as orchestra manager include maintaining lists of members and players, which she does with the help of a database package.

> Richard: She's got lists of the orchestra members with the phone numbers of the players and separate lists for the paid players, and extra players and basic programme details.

She also uses the home computer to design programmes, posters and notices.

> Jane: I do all sorts of notices, like rehearsal schedules, or notices saying "go upstairs for balcony seats" and so on.

The orchestra is one of the activities where Jane actively seeks help from Daffyd.

> Jane: Daffyd usually does it but I can do it, make up the lists, and programmes for the year and lists of names and programme lists, players on the programme, he does all that on the computer for me.

But the help Daffyd provides for Jane's orchestra is not restricted to computing.

> Richard: They do quite a lot of music and my father helps my mother with her orchestra. So they're quite often going to concerts either to watch or to play, my mother to play, my father often does front of house duties like selling programmes and collecting tickets and things like that.

The computer is also used to issue letters to friends, in particular a letter that is sent with Christmas cards. It is interesting to note that the letter is photocopied (presumably at Jane's or Daffyd's workplace). This suggests that the letter is the same for every receiver and that they do not make use of any kind of mail merge facility to customise it.

> Jane: [...] at Christmas we issued a Christmas letter, photocopied it and… with the news for the year, we've done that I think the last two or three years, rather than write it by hand to everybody, but we don't write many letters to friends.

Jane reports that she has not used e-mail so far.

> Jane: I don't know anybody's e-mail address to send to.

However, she does occasionally read messages addressed to her husband that are of interest to her

> Jane: [...] he'll have to show you… pictures of me holding his brother's grand-daughter.

Jane's attitude towards the home computer is mixed. Her opinion is shaped by a number of factors, including her own experience with computers both at work and at home and her observation of Daffyd's and Richard's computer usage. Although she uses it to carry out a number of tasks, she makes it clear that the computer is no more than a means to an end for her ("it's a tool I *have to* use sometimes" [emphasis added]). She affirms that she does not find any satisfaction in "playing

around" with the computer ("I don't want to sit and play with the computer unless I've got to do it. I couldn't do it for fun, you know, it doesn't interest me like that"). Similarly, she shows little interest in reading computer magazines or in participating in conversations about computers.

Although she affirms that the computer probably has "more advantages than disadvantages", her discourse gives out indications that she may not be totally convinced of this last statement. Her experiences at her workplace perhaps contribute to explain her scepticism regarding the indiscriminate use of computers. In particular, she is critical of the school policy that requires all work to be typed.

> Jane: And we are told at school that all our work should be typed on the computer, all exams have to be typed on the computer. But whenever I do quick worksheets for the six forms, for example, if I say "I haven't got time to type it all" I'm told "oh it's not necessary". They don't mind. It's the powers that be that like it all typed.
>
> LH: Who are the powers to be?
>
> Jane: Well, the head of department... and as a result a lot of time is wasted on trying to fit diagrams up to the page, not the actual typing, but trying to get diagrams out on the page, trying to get Greek letters, all the mathematical symbols. And the number of times people say: "oh, I'll write that bit by hand" and leave a gap and then forget to fill it in, so we have a disaster in the exam paper.

It is clear that she would rather handwrite some or all of the handouts and exam papers if given the choice.

> Jane: It takes ages doing some of the drawings when I know I can do it by hand in two minutes.
>
> [...]

> Jane: Sometimes I want to type a worksheet with a very simple diagram like two parallel lines and another line crossing the two.

On a more personal level, she seems to dislike the un-human aspect of technology. For example, her feeling about e-mail is that it is "good for a quick message" but "a bit impersonal". She has not had first-hand experience with e-mail but, when asked if she would ever use e-mail, she relates a story about Richard's experience with his girlfriend.

> Jane: You can't really say much on e-mail. For example, Richard and Barbra e-mailed each other for a little while and they seemed to only say things that caused upset for the two of them. And now they never do, ever…

She considers Daffyd's use of the computer to be somewhat excessive ("whenever I want him to do anything he's always upstairs. First thing in the morning when I'm getting washed and dressed, he's in there trying games") and contrasts it with her own, more 'selective' attitude towards the computer ("He would sit and play Patience as an occupation, but I wouldn't do that since I could do it with a pack of cards"). She mentions "music, housework, sowing, gardening" as activities she prefers to computer use. Daffyd's fondness for gadgets seems to annoy her somehow ("I don't like playing with gadgets basically").

She also draws a parallel between Daffyd's interest in computing and his keenness to acquire and use specialist knowledge regarding other electronic appliances.

> Jane: […] he's always been interested in computers […]. But the same way he likes television, radio, he's interested in the video and the tape recorder, […]. He's done amateur radio. So, yes, he is interested in electronics to a certain extent, as well as computers.

However, this interest does not extend to household appliances.

LH: How about household appliances? Is he interested in the washing machine or…?

Jane: No, not really. No, he doesn't know how it works. I mean, he does vaguely but he never uses it. He could if he had to, he has done, but you have to remind him how to use it because it's so long since he's done it. No, more the television and stereo and video.

She is aware that Daffyd performs some tasks on the computer for her but justifies it by saying that his computer skills are better than hers ("he's just so much quicker at typing than I am"). She does not believe that the computer saves her time or could do so in the future.

Jane: I'm not quick enough at it yet.

LH: But do you think you will at some point?

Jane: Probably not at my age.

There are indications that money is both a concern and a subject of contention within the Williams household. Jane and Daffyd seem to agree on the need to keep the cost of Internet-related telephone communications down. For example, we have seen that Jane abandoned a search for information on the Internet because the first results were unsatisfactory and "it was going to be too costly". Daffyd's concern with the cost of telecommunication when using the Internet is also visible, for example when he quotes the exact figures of the connection price per minute.

Daffyd: [...] I don't go interneting until after 6 o'clock, because it costs less, instead of 4 pence a minute it's 1.7. And I use one of these "friends" numbers, "friends and family". And then there's something they're introducing now as a "special friend", which is to cost even less…

Other remarks also reveal that the cost of his Internet communications is a concern to him.

> Daffyd: I wish we lived in Canada or the US because all the local numbers are free and the Internet number is a local number, so I would like that. But this government can't afford it, I'm afraid.
>
> [...]
>
> LH: Do you budget your computer-related expenses?
>
> Daffyd: No, but you won't find me on the Internet before six o'clock, except when it's important.

Jane also voices some concern over the amount of money spent on Internet-related telecommunications and deplores that the bill they get for telecommunication use is not "fully itemised".

> Jane: […] we only have an itemised bill for the big calls, calls over a certain amount, international calls. So all the Internet calls don't appear because none of them go over that amount don't they? I know there's a lot of Internet calls in it […].

Other daily expenses related to computer use such as the cost of electricity seem to bother Jane more than Daffyd.

> Jane: He would sit and play Patience as an occupation, but I wouldn't do that since I could do it with a pack of cards. [...] It's not using electricity; it's a lot cheaper.

Richard also voices his disagreement when his father plan computer-related expenses that appear excessive to him.

> Richard: When my Dad was buying the computer, we got together and discussed it. He wanted a TV extension. I said "it's a waste of money, we've already got a TV".

But the main subject of contention within the Williams family seems to be Daffyd's wish to upgrade the family computer. Daffyd comments - somewhat jokingly ("she,

who must be obeyed") - on his wife's concern over budget matters and the cost of a computer upgrade.

> LH: So do you plan your budget beforehand?
>
> Daffyd: No, we've never done that. She would want me to plan it. She, who must be obeyed, would love me to plan things but she doesn't and I don't. We just look at our bank account and say "Yes, we can afford that: off we go". But she doesn't want me to spend another 1500 quid updating… upgrading my computer.

The meaning of the word "upgrading" is worth investigating here. Although Daffyd affirms that he wishes nothing more than an upgrade of his computer in order to install Windows 98, he has gathered from conversations with the DELL support office that such an upgrade would be unfeasible. He therefore needs to buy a new home computer in order to install Windows 98.

Jane's argument against purchasing a new computer apparently revolves around the financial aspect of the transaction.

> LH: Would you say you are against the idea of an upgrade?
>
> Jane: No, I'm not against the idea of an upgrade. But buying a new one, we can't afford it. It's only - what? – three years since we spent £2,000 on that one. And I don't think we can afford to change it. [...] So we're against buying a new one, spending a lot of money, yes. If he could upgrade this one, I think he ought to find out a little bit more about it, because when he bought it, they told him he could upgrade it. Now they say he can't. That's pretty bad in three years isn't it?

Jane mentions that one of Daffyd's arguments when first buying the home computer was that it would enable him to carry out some extra 'jobs' from home and therefore earn enough money to cover the initial cost of the investment.

However, as Jane remarks somewhat bitterly, none of those hopes have materialised.

> Jane: When he bought it, he assured me he was spending this money and he would be able to do lots of jobs with it, earn lots of money, but he hasn't done a thing with it. That's the thing. I don't know where he could get jobs to do but he could if he made the effort. I don't know… But he assured me that once he got the computer he would be able to make money.
>
> LH: His argument for this time is also to earn money?
>
> Jane: Oh, I don't know. Well, he can't really use that excuse now, can he?

Daffyd does not mention anything about the past use of the home computer for money raising purposes but hints at the potential monetary gains that may derive from upgrading the home computer. One of the most apparently obscure but eventually revealing statements Daffyd makes during the last interview concerns an experiment he has been working on for some time.

> Daffyd: I'm trying to build an aerial to actually interpret the data that's there... I'm being silly now. How best to build it. I discussed it with my friend how to build it to be told that it's physically not possible. So I'm talking with some plastics firm as to which piece of plastic will be best to use, what's the cost and how robust it's going to be and I want to use one of my ports from my computer to run the electronics from it. We've got 10 MHz coming out of somewhere. So I am collecting the lot, it's not together yet.
>
> LH: The elements for the aerial?
>
> Daffyd: The interpretation of what the aerial is doing. I read a report from [...] three years ago where they were looking at this sort of things. And I think they went the wrong way. I'd like to have a go at it.

During the 'formal' part of the last interview, Daffyd devotes a relatively large amount of time describing this 'project', although he actually gives very little

information about what it is about, probably because he is concerned about the confidentiality of the interview.

> Daffyd: [...] It's the first time I've talked about that sort of things on a tape.

Although he tries to tone down its significance, it is not inconceivable that his project represents more for him that a "nice little experiment". In the middle of his expose, Daffyd refers to a famous invention – the Hovercraft – and the lack of recognition that the inventor received from the civil service after having communicated his idea.

> Daffyd: [...] The guy who invented Hovercraft was a civil servant. And he should have been a millionaire by now, but he retired on a little civil servant's pension and they said 'thank you very much for giving us the Hovercraft'. I can't remember what his name was now. That sort of things. You have an idea, they make money out of it and you just retire on a small pension

It is not clear what the purpose of this deviation actually is but one could imagine that Daffyd hopes for a similar future for his own project.

When faced with the question of whether he would get a home computer for himself once he settles down, Richard explains how the rate of obsolescence of information technology makes him hesitate before investing in a home computer.

> Richard: […] you're constrained by money and things like that. And you just don't know how quickly to buy a computer. If you really bought a computer in a sort of rational economic terms, you'd probably never actually buy one. Because there's new sort of technology, or speed coming out all the time and their prices drop so fast that if you wait for the prices to drop then it's out of date by the time you finish, so you may never end up buying a computer. You have to take the plunge in a sense.

Richard was born in 1975 and did a BSc and an MSc at the LSE. Afterwards, he took up at two-year contract in an investment bank in the City. Richard is rather self-effacing when answering questions about his family and it was therefore difficult to get much of his own opinion throughout the two interviews. He does not share his father's passion for computers but has acquired a relatively extensive knowledge of computers through school and work.

> Richard: I think I could use it a lot more than I do, but, I'm someone who's not… I'm quite computer literate but I'm just not… I don't enjoy using the computer. I don't enjoy sitting in front of the screen for a few hours on end. Unless I really want to find something out and I can't find it in the Library.

However, he rarely used the home computer for his academic work

> Richard: I only use it if I have got some typing to do really. Because most of the things I do at school require quite specialist sort of software like statistics or mathematical packages, which obviously we don't have at home. Other than that, I don't use it.

He does not seem overly interested in playing or acquiring computer games either at home or outside the home.

> LH: Do you play games yourself?
>
> Richard: I might play if we had better games. Not that I am very knowledgeable in computer games. But to tell you the truth, I'd play anything that is not Patience or Mindsweeper these days. But I'm not even sure I would play the games.
>
> [...]
>
> Richard: […] I don't really use it at all. I mean, we don't have games…
>
> LH: You still don't have games?
>
> Richard: No, not really, no sort of board games. There's like Minesweeper and Patience there installed on it, but they're a bit boring, so…

Up to 1997, Richard seemed to have little interest in surfing the Internet for information.

> Richard: I don't think first… when I want to find something, or know about something, I don't think the Internet. It's more going to the Library and books and things like that.

However, he was planning to browse around when at home for the Easter vacations. His decision to use the home computer rather than the school computer is motivated by the rules of the school.

> Richard: At LSE, you know, you're not supposed to use the Internet really for anything that's non-academic.
>
> LH: But if the Internet is fully operating, would you use it [the home computer] for the Internet?
>
> Richard: Oh yeah, definitely. I haven't really bothered sitting down and using the Internet much at school. So I could just sort of spend a couple of hours looking through to see what's available. I think some people, a lot of people expect too much out of the Internet and then a lot of people don't expect enough. […] That's all I'll be doing. I'll just be sitting there surfing the Internet and I can sort of sit down and just relax while I do it and take the time but I don't think I'll be searching for anything special. I'd just like to see what's on it.

I did not get any first-hand information about Richard's use of e-mail after leaving university. However, his father does mention that his e-mail box is filled primarily by e-mails addressed to Richard, which, he recalls, caused some confusion at first.

> Daffyd: What he has not done is actually allocate himself an e-mail on my box. So they send it to me. He sends around to his university people and then they send the reply to me. And at the beginning I was: "What is that name?", that sort of things.

The accumulation of e-mails addressed to Richard in Daffyd's box led to the institution of an "e-mail collection on Friday".

> LH: Does Richard have an e-mail address in London?
>
> Daffyd: No, he uses my e-mail address
>
> LH: Here?
>
> Daffyd: Here. [...] Now we get about.... on average six e-mails a week.
>
> LH: Six a week? For Richard?
>
> Daffyd: Oh yes, well it's getting on that way anyway. I do an e-mail collection on Friday because he comes home on the Friday night, 10 to 10. We do an e-mail collection up.

Although he insists that he never reads e-mail messages addressed to Richard "before he reads them", Daffyd does notice the provenance of the e-mails and the message titles ("Some of them are quite humorous").

### *Concluding comments*

The Williams family provided us with very rich (probably the richest in this study) accounts into the way the home computer is used, thought of, and eventually integrated within family life. In understanding the role of the home computer that the home computer plays in fulfilling many of Daffyd's needs, and in particular in contributing to building and maintaining his identity. An analysis of the tension between Jane and Richard on one side and Daffyd on the other will help us make sense of the different meanings attributed to the home computer within the Williams family.

## Section 4: The Sharma family

### *Introduction*

I first met the Sharma family in May 1995 after having obtained their telephone number through a colleague that had been their neighbour for some time. I further visited them twice in December 1996. They accepted to fill out a 'computer diary' for two weeks. The Sharma are a very friendly family, who were generally willing to help, for example, by offering to introduce me to other families, one of whom features in this research (the O'Leary family, described in Section 5.5). Maia and Nicola looked very excited at the thought of being part of a "book", asking when it would be "out" and whether I had chosen a title for it yet. They sounded disappointed when I informed them that all names would be changed.

The Sharma live in South London next to a busy road. They occupy a small flat in the basement of a rather run-down estate. In stark contrast, the interior of the flat is very clean and pleasant ("we try to make it nice here"). All the interviews took place in the living room, with one short visit to the daughters' room in order to allow them to demonstrate some software on the computer. Bernard and his daughters were present throughout the three interviews whereas Teresa only participated in two of them. I had the feeling that Bernard wanted to attend the interviews not only out of interest but also to check what kind of questions his daughters were being asked. Teresa looked much less interested, drifting in and out of the living room to get some more tea from the kitchen or to empty the washing machine.

***Profile***

| Name | | Bernard | Teresa | Maia | Nicola |
|---|---|---|---|---|---|
| Age at the time of the first interview | | Early forties | Early thirties | 10 | 9 |
| Nationality | | British, Indian descent, emigrated from Uganda | Philippine | British | British |
| Occupation | | Prison warder | Nurse aid | N.A. | N.A. |
| Marital status | | Married | | N.A. | N.A. |
| Description of the home | | Basement flat in South London | | | |
| Present? | Interview no. 1 | Yes | Yes | Yes | Yes |
| | Interview no. 2 | Yes | No | Yes | Yes |
| | Interview no. 3 | Yes | Yes | Yes | Yes |
| Computer and related equipment present in the home | | EGA 386 SS33 | | | |
| Computer use | Leisure | Games (Lemmings) | N.A. | Games (Lemmings, Mr. Chip, Tetris, Golf, Puzzle) | |
| | Work | Word-processing and databases (for his import-export business) | N.A. | N.A. | N.A. |
| | Education | N.A. | N.A. | Encyclopaedia (for essays and presentations);<br>Word-processing | Encyclopaedia;<br>Able Table;<br>Word-processing. |
| | Family duties | Spreadsheets (home accounting) | N.A. | N.A. | N.A. |

Table 5.4: Profile of the Sharma family

***Description***

Bernard is of Indian origins but was born and raised in Uganda. He moved to the UK in the 1970s and has been a prison warder ever since. He does not comment on how he feels about the job but he hints at the fact that he may have preferred to follow another type of career ("when you don't have an education, you have no choice… I had no choice…"). He also runs an import-export business "on the side". During the first interview, he sounded reluctant to give much detail about his business, which discouraged me from asking further questions. However, during the second interview, he did provide some examples of what his business consisted of.

> Bernard: Whatever business there was for me to do, I was doing it. I did fishing nets from Taiwan, various sports clothing from Nigeria, anything…

The income Bernard derives from it does not seem to be very regular, which explains why he affirms not "relying on it" and considering it as a supplementary income for "extra" expenses such as holidays.

> Bernard: Things have gone very quiet with the way the world is today. There was no real point of me continuing so I stopped. When things pick up again, I may…
>
> […]
>
> Bernard: Business is slow at this time of the year. I learned not to rely too much on my business to generate profit. If it's a good month, it's a little extra… an extra income for the holidays or things like that. But we don't rely on it for the everyday expenses…

It is probable that Bernard has become familiar with computers at his workplace.

> LH: How about you, Bernard? Do you have computers at work?
>
> Bernard: Yes, we do… with specific prisoner information. Not everyone has access to it. You have to have a password… for security reasons. It's going to be a national network. We also have a PC but we only use it at lunch hour. It's a totally different system.

But there is no indication that the home computer could be of any use to Bernard for his job as a prison warder. However, he does use the home computer for his business, mainly for word processing, but also for maintaining the accounts and as a means of communication ("I had it connected to a fax"). His decision not to buy Quicken, a popular financial and accounting package, is probably linked to the price of the software, but also to the fact that he already has access to a spreadsheet package, which he believes is "good enough".

> Bernard: I do my accounts on Excel… […] I thought of buying Quicken, but I thought no, I don't really need it. Excel is good enough… When you think about it, there's nothing you can't do on Excel, you can do graphs, you can do forecasts…

During the first interview he affirms that he would consider buying a modem if he felt it was needed for his business.

> LH: Would you consider buying a modem?
>
> Bernard: If I got to the stage where I needed one for my business, yes.
>
> LH: What would you use it for?
>
> Bernard: It depends. Prices vary from one country to another … and from one day to another of course… so it would be handy to check, like, the exchange rate.

Bernard believes that owning a modem would give him access to more timely and up-to-date information regarding the changes in exchange rates between currencies

of the countries he deals with. He does not mention the possibility to build a web page for his business or to use e-mail for some of his business transactions.

Bernard admits that he plays some games on the computer but that he sees them as a very time-consuming activity. He explains that games are one of the major factors in his wife's negative attitude towards the home computer.

> Bernard: She sees it [the home computer] as a nuisance, because when you are playing games you can't just stop and walk away. You've got to finish the game.

Throughout the three interviews, Bernard appears keen to show that he cares for his daughters' education and personal development. In particular, he always emphasises the role of the computer as an educational tool.

> Bernard: [...] all our CDs are educational.
>
> [...]
>
> Bernard: I want the computer to be educational, for them, which is my priority at the moment.

He displays a largely positive attitude towards the home computer, mainly because of the educational possibilities he sees in it.

> Bernard: I expected it would be difficult for them [Maia and Nicola] if they didn't have one [a computer]. I think it's important for them, I mean, in this day and age… I want them to have the best education possible. Then… then, they can choose what they do with it. But when you don't have an education, you have no choice… I had no choice… There are opportunities out there but you have to give yourself the chance to… to pick them up. And for that you need an education… and direction. […] And the computer… the computer facilitates that. It won't do the work for you but it will facilitate it… it will make it easier, or more fun, or… It's a tool. But, in this day and age, I think it's a necessary tool.

Bernard is aware that the home computer is not used exclusively for educational purposes but encourages his daughters to draw as much educational benefit as possible from it.

> Bernard: She [Maia] doesn't seem to use it exclusively to do her homework… but if I'm around, I make sure she does.

He refers several times to the CD-ROM encyclopaedia he has acquired for his daughters and to its usefulness when it comes to finding information for their homework. He also sees it as a functional tool to help his daughters gain general knowledge, outside the realm of the requirements of the formal educational system.

> Bernard: [...] The good thing with this is that they learn a lot. They have a good knowledge of painting now, without having to read too many art books. It's not ideal, but it's good, it's good for them. When it comes to, like, biology, there's a lot there for them. Most people wouldn't use that much.
>
> [...]
>
> Bernard: She [Maia] also uses the encyclopaedia, for her presentations.
>
> LH: What are those presentations about?
>
> Maia: Things about woods and metals… the Greeks, the Romans… animals…
>
> Bernard: She has to find as much background information as she can.
>
> [...]
>
> Bernard: Maia uses the multimedia encyclopaedia. Maia, tell Laurence what you do with the encyclopaedia.
>
> Maia: I read about tropical rain forests…
>
> Bernard: Not only tropical rain forests. You learn about all sorts of things. You learn about geography, about history… the animals…

The use of words in this last patch of conversation may be indicative of Bernard's keenness to see his daughters acquiring knowledge. Whereas Maia affirms that she "reads" about a particular topic, Bernard insists that she "learns" about "all sorts of

things", which denotes his enthusiasm towards the educational possibilities associated with the use of a software-based encyclopaedia.

However, Bernard is not uncritical vis-à-vis the encyclopaedia. In particular, he shows some concern about the software providing 'biased' information because it is targeted towards the American market.

> Bernard: There is a lot on it, I mean a lot. Have you used it before?
>
> LH: Not this particular one, no.
>
> Bernard: There's lot of information. The only problem we have with it, it's an American software. We bought it because… the English ones are not as cheap. [...] Here we have tropical rain forests and it becomes a little bit confusing. And history: Martin Luther King, JFK… again biased to the American. It's more American history.

More generally, Bernard encourages his daughters to undertake educational activities such as reading books or watching documentaries during their leisure time.

> Bernard: […] we prefer to see them read rather than watching telly.
>
> Bernard: I always encourage them to read. A lot of information is gained from books.
>
> Bernard: When there is a documentary on, I try to get them to watch it with us and to ask questions.
>
> LH: What kind of documentaries?
>
> Bernard: Any kind, topical documentaries, investigation documentaries… There was this series on World War Two…

Although Bernard suggested during the first interview that he would consider buying a modem for his business, he held a rather different opinion a year later.

> LH: Do you have a modem?

> Bernard: I don't want one, because of the Internet. There's a lot of information but … too much sometimes. It's nice when you know exactly what information you want because the wealth of information is phenomenal, but there's also a lot that I don't want them to get on to, which is on and you can't do anything about it, which is rather unfortunate.

His discomfort with uncensored material on the Internet is consistent with his concern over what his daughters watch on television.

> Bernard: They generally watch what we watch. I tend to watch documentaries. But we do restrict their watching, depending on the age given by the censor.

Teresa is of Philippine origins. She works night shifts as a nurse in a local hospital. As mentioned earlier, Teresa only participated in two out of the three interviews. During the first interview, she looked rather reserved, only speaking on four occasions, two of which were to answer questions that were directly addressed to her. This, of course, may be due to a number of factors that I could be unaware of. However, I would hypothesise that her relative silence during the first interview was mostly due to the fact that the conversation was revolving around the theme of computers and computer use and that she may have felt left out. She looked more open during the third interview, which covered a more varied range of topics such as television, books and magazines.

Teresa is far less interested in the computer than her husband. When asked whether she uses the computer, she immediately answers negatively ("Me? No, I never use it"). Her two main reasons for not using the computer seem to be that, first, she does not believe that it would save her time and, second, she finds it too complicated.

LH: Teresa, what do you think about the computer?

Teresa: What do I think? Not much. Well, I watch them do it. But I never use it.

LH: Why is that?

Teresa: Why? I don't know. I always have something else to do. Like with letters…It takes so long to switch it on and… click around to… to get the right file… I don't have the patience. So… if I have a letter or something, I'd rather write it by hand… it's much easier for me.

Interestingly enough, more information was gathered about Teresa's dislike of the computer during the interview that Teresa did not attend. Bernard mentions that Teresa gets irritated with other members of the family playing games, because they are unwilling to stop in the middle of a game and because they may be neglecting other tasks that she believes are more important (homework, chores…).

LH: What about Teresa, does she use the computer at all?

Nicola: [laughs]

LH: What does she think about it? She doesn't like it?

Bernard: She sees it as a nuisance, because when you are playing games you can't just stop and walk away. You've got to finish the game. I don't think she really minds. But she thinks about homework and all the other things to do and chores… It's not that she doesn't like computers, she just doesn't see the point…

The most revealing piece of information about Teresa's opinion about computers was gathered from a patch of conversation initiated by one of Nicola's spontaneous remarks. This conversation reveals that Teresa's experience of computing at her workplace may have played an important role in shaping her attitude towards computers negatively.

Nicola: She says there are computer people all over the hospital and that they're a pain.

Bernard: There is some kind of computerisation going on in the hospital at the moment. They got some consultants in… I mean, some kind of computer consultants, not doctors…

Nicola: They keep switching the lights off and messing up the paperwork.

Bernard: They have been hired to reorganise the filing system… not only the filing system, I suppose, other things as well… but that's what they've been doing lately and … and, of course, you know how it is, it takes time to get accustomed to it. People are used to doing things one way, they don't want to do it any other way.

Maia looks like a very serious child, helping her sister to do her homework and helping out in the kitchen. She also seems to be very keen on schoolwork, although one could hypothesise that her obliging behaviour could be motivated by the wish to please her father or to look serious in front of an adult.

LH: What's your favourite leisure activity, Maia?

Maia: I have to do my homework. I like swimming in the summer.

[…]

Maia [shows one of her assignments, a story with pictures]

LH: Oh! That looks like hard work!

Maia: I like doing things like this. I spend more time on drawing than I do on writing. I also like to draw posters. If you do very good work you get certificates called gold slips. I can't show them because we've got to keep them in school. I've got about 9 of them for very good work. It's hard to get them too. The teacher has to add the credits up, you need five credits before you can get a gold slip.

LH: So how much time do you spend doing this sort of homework?

Maia: It should take you at least half an hour but sometimes I take my time. What we have to do for homework, I really like to do, so I spend more time on that.

Bernard seems to be keen to mention Maia's academic achievements.

> Bernard: […] [To Maia] Show your story to Laurence.
>
> […]
>
> Bernard: Tell Laurence how many credits you've got.
>
> Maia: At the moment, I have 55.
>
> Bernard: And how many credits do your classmates have?
>
> Maia: One girl has 80 but very few have more than 60.

Maia mentions a story she had to write for school and for which she chose to use the home computer. It is remarkable to see that, when Maia talks about her assignment, she first describes the content of the story rather than its presentation. It is only when asked whether it was compulsory to use the computer for that assignment that she mentions the fact that the computer allows for a nicer presentation ("it's nicer when it's all nice and typed up"). However she chose not to use the computer for the illustrations required for that assignment and did the drawings by hand, explaining that the drawing software does not allow for an easy manipulation of certain patterns, such as waves.

> LH: Did you do any drawings for that story?
>
> Maia: Yes, I did… but not on the computer. You can't do much on the computer… like if you want to draw waves or something… and it's black and white so you'd have to colour it anyway if you want it to look nice.

Nicola often looks and sounds more spontaneous than her sister, perhaps because she is younger. Each time I visited the Sharma family, Nicola seemed to have less homework than Maia did.

> Nicola: I don't get much homework. What I have, I do at school.
>
> LH: When is that?

> Nicola: When we're finished with our work for the day, we can just do our homework before we leave.

Nicola uses the computer both for playing games and for drawing. However, she remarks that drawing on the computer is not "as much fun" as painting.

> Bernard: […] She [Nicola] uses it more for games. And drawings…
>
> Nicola: But it's not as much fun as the painting kit… you know where you can mix colours…
>
> Bernard: And spill it all over your clothes!

Given the young age of the two daughters, it is not surprising to see that most of their leisure time outside the home is spent with at least one of the parents.

> Maia: We sometimes go out.
>
> LH: Where do you go?
>
> Maia: Croydon, we go out and buy stuff and in the summer we go to Crystal Palace and ride our bikes and … have a picnic.
>
> Bernard: We go down to the coast for holidays, we go camping. I sometimes go fishing for a weekend. We went to Blackpool. But last summer was a bit different, we went to the States.

The issue of time is raised at several points throughout the interviews. According to Maia, conflicts over the allocation of computer time happen "all the time". Bernard usually plays the role of the arbitrator when such conflicts arise.

> Bernard: I rule. If it's important for me, then they come off. I don't need it very often but it makes it easy for me to write all my letters.

As a rule, he gives priority to "whoever is doing homework" but he seems reluctant to intervene when his daughters are having an argument that he believes is not of fundamental importance.

Bernard: Otherwise… if it's for games or something, I let them argue… as long as they don't wake their mother up… I won't intervene… they have to learn how to… how to compromise. It's important in life, compromise.

Although Nicola and Maia reckon that they spend roughly the same amount of time on the computer, they do argue over the fairness of their "taking turns" procedure.

LH: [to Nicola and Maia] So, how do you compromise when you both want to play games?

Maia: We take turns.

Nicola: I'd play one game then she'd play one, and so on…

Maia: You always play two or three before I can play again!

Nicola: That's because she's so much better than I am. When I play, it's… sometimes it's over in 5 seconds.

Maia: I'm not better than she is. You got 755 points once.

Nicola: Once!

Bernard seems to be very strict about bedtime, except at weekends.

LH: Do you do your homework before or after [six o'clock]?

Maia: Sometimes I do them before sometimes after.

Bernard: But they have to be in bed by eight.

Maia: And sometimes I'm not finished.

LH: So what do you do then?

Maia: Sometimes in the morning when I get up.

[...]

LH: [to Maia and Nicola] When do you normally use the computer?

Nicola: Oh, any time…

Bernard: Provided that it doesn't upset their bedtime schedule.

LH: When is bedtime?

> Bernard: Bedtime is nine. I'm very strict about that. Not during weekends but if they're going to school in the morning, they've got to be in bed by nine.

Money seems to be an issue in the Sharma household, in particular as far as non-essential goods or activities are concerned, such as computer magazines or "unnecessary gadgets".

> LH: Do you buy computer magazines?
>
> Bernard: Sometimes PC Shopper. […] Computing Today… […] But I don't buy them very often because… well, they're not cheap.
>
> […]
>
> Bernard: The only problem we have with it, it's an American software. We bought it because… the English ones are not as cheap.
>
> [...]
>
> Bernard: […] they [Maia and Nicola] are very sensible when it comes to buying things, like clothes or something. They never ask for unnecessary gadgets. They know we can't afford it. They know what's important and what is not.

Although they are particularly concerned with financial matters, the Sharma do not seem to keep detailed accounts. When asked about whether someone kept the accounts for the household on the computer, Bernard answers negatively.

> LH: Is that the accounts for the business or for the household?
>
> Bernard: Oh, for the business. I wouldn't dream of having such detailed accounts for the household.

***Concluding comments***

Bernard's 'self-assigned' role as the sponsor of the home computer appears central to a study of the Sharma family. It certainly seems to dominate not only the conversation but also the family's attitude (or, more precisely, attitudes) towards

the home computer. We talk about family 'attitudes' in the plural form because we recognise that, despite Teresa's relative silence or 'absence' (literally and figuratively) during the interviews, her opposition to the home computer is very much 'present' within the home. We will therefore strive to 'give a voice' to Teresa's resistance and investigate the ways in which it shapes and is shaped by her background and environment.

## Section 5: The O'Leary family

### *Introduction*

Trini and Steven O'Leary live in a small flat in South London with their two children, Carita, 17, and Jeremiah, 13. Their house looked modest but extremely clean and tidy. The walls were covered with religious icons and phrases as well as a large picture of the Pope, next to several army photographs of Steven's troop during missions in the Middle East.

I obtained the O'Leary's telephone number through Bernard and Teresa Sharma. I visited the family once in January 1997. Although I had specified on the phone that I wished to meet all the members of the family and Trini had agreed to it, it turned out that Steven and Carita were not willing to participate (the former was sleeping and the latter "getting ready to go out"). I did get to talk to Carita, but she did not look very keen on being interviewed ("It depends, what do you want to know?") and therefore only gathered limited first-hand information on her. Most of the information I got about the O'Leary family was obtained through the conversation with Trini and Jeremiah.

***Profile***

| Name | | Steven | Trini | Carita | Jeremiah |
|---|---|---|---|---|---|
| Age at the time of the interview | | Early fifties | mid thirties | 17 | 13 |
| Nationality | | Irish | Philippine | British | British |
| Occupation | | Hotel supervisor | Crèche co-ordinator | N.A. | N.A. |
| Description of the home | | Small apartment in Upper Norwood | | | |
| Marital status | | Married | | Single | |
| Present at the interview? | | No | Yes | Yes, briefly | Yes |
| Computer and related equipment present in the home | | PC Contessa | | | |
| Computer use | Leisure | N.A. | N.A. | Word-processing (writing letters) | Games;<br><br>Drawing packages. |
| | Work | N.A. | N.A. | N.A. | N.A. |
| | Education | N.A. | N.A. | Word-processing (Homework) | Word-processing (Homework) |
| | Family duties | N.A. | Word-processing (letters) | N.A. | N.A. |

Table 5.5: Profile of the O'Leary family

***Description***

Trini is a Crèche co-ordinator in her late thirties. Of Philipinne origins, she moved to London in 1978 and, presumably, got married shortly afterwards. She works part-time (17 and a half hour a week) but also undertakes extra work such as "assessing a student who's doing the NVQ child care". Trini is obviously not the main user of the home computer and insists that she knows little about how it functions. ("I can use it to type but he [Jeremiah] has to help me", "I wouldn't know where to start"). Jeremiah illustrates this point by giving the example of the 'save' function that, he believes, his mother does not make full use of.

> Jeremiah: I have to switch it on and set it all up… the word processor and all that. And I keep telling her to save. She always forgets to save.
>
> Trini: But we don't really need to save, we have the printer…
>
> Jeremiah: Still, it's better to save… You might need it later.
>
> Trini: [looks at the ceiling] Kids…

Trini seems to maintain close links with her family, which includes travelling to the Philippines, inviting them to stay at her place, writing and phoning. She would not, however, consider using e-mail to correspond with her relatives, both because of difficulties she reckons they would have getting access to a computer and because of their relative unfamiliarity with computers.

> LH: Would you use e-mail if you had access to it?
>
> Trini: With my family? [She laughs] No, they don't have computers in the Philippines, I mean, my family, they don't. And they wouldn't know where to start anyway.

Trini admits that she would not want to have computers at work ("I'm too slow… And there's no need for it at the Crèche, really") and recalls a friend's unhappy experience with computers in the workplace.

> Trini: His colleague, Craig… well, a former colleague… a friend more than a colleague… he works at the Royal George Hotel down the road and they got computers there. And he wasn't happy at all. I mean, it's OK when you're young, but… It's tough at our age… We're not used to it… So, I don't know…

However, she does seem to believe that a home computer is a sound investment. When asked what they had in mind when buying the computer, Trini answers that "it's always better to have a computer at home". Another decisive element seems to have been the fact that "all his [Jeremiah's] friends have one". Her feeling towards the computer is that "it's better than television… At least he's doing something. It's less passive".

Trini looks quite proud of Jeremiah's computing abilities ("he doesn't need to be taught. He reads the brochures and that's enough…") but does not say much about Carita's. There might be a variety of reasons for this but one may hypotethise that one of the reasons may be that Trini does not hold the same kind of expectations for Carita because of her gender ("She's not all that interested, you know. I mean, she's a girl…). However, this hypothesis cannot be verified since Trini does not seem to make any other kind of gender differentiation when talking about her children.

> Trini: He knows that homework is most important. *They* both know. And *they*'re quite sensible kids as well so… *They* never fight or anything like that. I don't really have to worry about *them* doing something silly. [emphases added]

It appears that the main computer user in the household is Jeremiah, who is 13 years old at the time of the interview. One of the first comments made by his mother is symptomatic of such a situation ("if you need to know about the computer, you'll have to ask Jeremiah"). Jeremiah seems to have been the driving force behind the purchase of the computer, although the whole family did participate to a certain extent ("We all went to the shop, the four of us, but he [Jeremiah] had to choose it, because… well, he needs it for school").

Trini makes a revealing comment about Jeremiah when she recalls how engrossed he became with the computer when they first acquired it.

> Trini: When we first got it, he wouldn't leave the house, he was always playing with the computer as if... we didn't exist or something. Like he wouldn't hear when I'd say "dinner is ready", well… he would say he didn't hear, so he could play some more with the computer. But he would come out of the room eventually. Now it's better.
>
> [...]
>
> LH: Do you always have meals together?
>
> Trini: Oh, yes, we wouldn't have meals separately! When it's school time, we wait for my daughter to come back from college.

She also draws a comparison between Jeremiah's life "before" and "after" the computer ("Before you got the computer, you used to be very keen on football...").

The activities that Jeremiah undertakes with the home computer are relatively varied, including homework, games, and general exploration ("...I just experiment… play around… see what the computer can do…"). Despite Jeremiah's efforts to convince his mother and me that he uses the computer mainly for academic purposes ("I don't play that much computer game. Not before I'm done

with my homework, anyway…"), it is apparent that computer games do play an important role in Jeremiah's life.

> LH: When you're at your friends' or when they come here, how much of your time do you spend on the computer?
>
> Jeremiah: Depends. Sometimes if they have a new… a good game… I mean, a multi-user game, we could play all day. Sometimes, we do other things.
>
> [...]
>
> LH: Do you ever use their [your friends'] home computer?
>
> Jeremiah: I used to. But now I have the computer, I don't need to go that often. Like for assignments and things… I do it here now. But it depends… If they have a new game or something, I might… but not very often, no.
>
> LH: When you're at your friends' or when they come here, how much of your time do you spend on the computer.
>
> Jeremiah: Depends. Sometimes if they have a new… a good game… I mean, a multiple-player game, we could play all day.

Because Carita was absent for most of the interview, I only managed to gather very limited information about her. She does seem to use the computer for homework and private correspondence but it is difficult to appreciate what the computer means for her. Jeremiah remarks that her knowledge of computers is not as extensive as his ("she keeps on asking me. Today she didn't know how to use the paint thing on the computer so I had to show her"). It seems possible that Carita may have chosen to keep her distances with the computer merely as a way to differentiate herself from her brother.

Steven is a hotel supervisor in his fifties. Of Irish origins, he has spent six years in the British army and settled in London in 1966. Neither him nor his children seem to have much contact with his family in Dublin. The only (second-hand)

information I gathered about Steven's attitude towards the computer is that he is "not interested".

Trini seems to have made a decision that she would not "bother with a modem" because she sees no need for it "at the moment". She knows that Jeremiah wants one but explains that it would be "unfair" because he would be "the only one to use it". In particular, she talks of her daughter's disinterest for a modem "Carita doesn't care about a modem. She'd like a mobile much more than a modem". Jeremiah is determined to change his mother's mind and builds up a (sometimes rather unconvincing) argument in favour of buying a modem around three elements. First, he reckons that the Internet is a valuable academic tool and gives the example of classmate of his who write essays on the basis of information obtained from the Internet.

> Jeremiah: I wouldn't mind a modem. Some of my classmates do their homework with stuff from the Internet. It's much easier… better information…
>
> [...]
>
> LH: Do you go on the Internet when you're at your friends' place?
>
> Jeremiah: Sometimes, I help them out with the searches… if they have an essay or something and they don't know where to look it up… We don't copy essays or anything, but we get information.
>
> LH: How do you know where to find the information?
>
> Jeremiah: Well, a link leads to another, then to another, then… Before you know it, you've got your essay, I mean… all your information, you just download it and… that's it…it's all there … you just have to write it up.

Second, Jeremiah tries to outline the practical advantages that access to the Internet would provide to other members of the family. For example he seizes the

opportunity to defend his case when the question of e-mail is raised. He assures his mother that e-mail is not as complicated as she may think and that he is ready to help her out. He also hints at the fact that Carita would want to use the Internet if she was given the chance to try it for herself and realise how useful it could be ("She would use it once she'd see what it can do"). Third, he presents the purchase of a modem as a financial investment, allowing, for example, cutting on long-distance call costs in the future. Jeremiah's argumentation in favour of the purchase of the modem is described in more detail in Chapter Six.

***Concluding comments***

What comes forth most obviously from this case study is the discrepancy in knowledge, interest and ultimately status between Jeremiah and the rest of the family. We will see how the home computer, and the values it represents, contributes to establish this status within and outside the domestic sphere.

## Section 6: The Montenegro family

### *Introduction*

I met the Montenegro family through Ernesto who was a student in my department. They only stayed in London for a year, in order for Mariela and Ernesto to complete their course. The Montenegro family lives in a small flat in central London. I visited them once.

***Profile***

| Name | | Ernesto | Mariela | Carlotta |
|---|---|---|---|---|
| Age at the time of the interview | | 29 | 28 | 4 |
| Nationality | | Nicaraguan | Nicaraguan | Nicaraguan |
| Occupation | | Student (on leave for a year from his family business) | Student | N.A. |
| Education | | Bachelor of Science (engineering) | Archaeology degree | N.A. |
| Description of the home | | Small apartment in Central London | | |
| Marital status | | Married | | N.A. |
| Present at the interview? | | Yes | Yes | Yes |
| Computer and related equipment present in the home | | Compac Notebook (two years old)<br><br>NEC laptop (borrowed from Mariela's sisiter) – one year old | | |
| Computer use | Leisure | Encyclopaedia Britannica | N.A. | Games (Tomshooter);<br><br>Puzzles;<br><br>Story book (Beatrix Potter) |
| | Work | Spreadsheets (office accounting) | N.A. | N.A. |
| | Education | Word-processing and Database packages (essays and projects) | Word-processing (typing notes and writing essays) | Paint;<br><br>Encyclopaedia;<br><br>Mathematical games: geometrical games, counting games. |
| | Family duties | Home accounting package | N.A. | N.A. |

Table 5.6: Profile of the Montenegro family

***Description***

Ernesto is a 29-year old information systems student from Nicaragua. He was formerly employed in his father's company, carrying out a number of different tasks such as accounting and meeting with clients.

> Ernesto: Before coming here, I was working with him [my father]. […]
>
> LH: What were you doing there?
>
> Ernesto: I was trained as a civil engineer but it's a small company so I was doing many different things… helping out with the accounts, or… meeting clients…

Ernesto mentions using the computer for academic purposes but does not go into much detail about it. His wife does point out that his use of the computer for his course assignments takes a lot of his time ("You spend so much time doing one chart!").

Although he is 'officially' a student, Ernesto remains involved in his father's company ("I left but…I can't leave them alone completely).

> Ernesto: I do spreadsheets… that's for the office accounting.
>
> LH: What office is that?
>
> Ernesto: Oh, it's my work back home. I'm still working there… in a way. I left but…I can't leave them alone completely. So, I keep up-to-date with what's happening and… I help them out.
>
> LH: What kind of work do you do?
>
> Ernesto: I have to analyse the information from the office - they send me the information I need.

Ernesto uses an accounting package in order to monitor the family's finances ("it tells me when bills are due..."). Ernesto's purchase of an encyclopaedic package is intended to serve two purposes. First, he uses it to search information about topics that have stimulated his interest.

> LH: When you use the encyclopaedia, is it for work or just for fun?
>
> Ernesto: No, not for work. Let's say there's a programme on TV on something and I want to know more about it, I load up the encyclopaedia and I see what I can find there.
>
> LH: And do you find what you want there?
>
> Ernesto: There's more than I need for just about everything, you know.
>
> LH: Can you give me an example of what you use the encyclopaedia for?
>
> Ernesto: Last week… the week before last, I saw a documentary on the Magellan Clouds, you know those galaxies that Magellan discovered when he was sailing down the South Seas... It was an interesting programme… I surfed the encyclopaedia a little bit and I found … there was quite a bit there, you know… the historical background and… I mean, not only the technical information… also all the background information...

Also, Ernesto teaches Carlotta general knowledge with the help of the encyclopaedic package. He presumably uses the pictures and visual effects available from the package to excite Carlotta's interest and imagination. Several of his comments reveal that he expects her to remember the information that has been presented to her in a pictorial form:

> Ernesto: And I *show* her things on the encyclopaedia. Tell Laurence what you *saw* on the encyclopaedia.
>
> [...]
>
> Ernesto: Remember we *saw* the volcanoes and the earthquake
>
> [...]

Ernesto: The ring is around Saturn, remember? It's one of the planets of the solar system. *Don't you remember the picture?*

[emphases added]

Mariela is a 28-year old archaeology student from Nicaragua. Apart from the odd game ("Solitaire, Hearts…") Mariela seems to only use her home computer almost exclusively for her academic work ("I use mine for typing up notes… and for my essays"). The computer she uses does not belong to her but to her sister's. She reckons that she would have probably not bought a computer ("It's not worth the expense, I think. I don't use it that much").

There seems to be a striking difference between the space occupied by Ernesto's computer and that of Mariela's.

LH: Could you tell me where the computers are located in the home?

Ernesto: Mine is in our bedroom, on my desk.

LH: Does it ever move?

Ernesto: No. It's always there.

Mariela: Mine is in a bag in the kitchen. I work in the kitchen and when I'm finished I pack it away.

Ernesto: We have only one desk, you see…

Mariela: But it's OK: I work after dinner, after everything is cleared up.

More generally, Mariela shows rather little interest in talking about the home computers, outlining that the computer plays a very limited role in her daily life. Her lack of involvement in activities such as the purchase of new software is apparent.

LH: Who is consulted when it comes to buying software and hardware?

> Ernesto: I just go to Tottenham Court Road and check for something nice there.
>
> LH: Do you ever discuss it at home beforehand?
>
> Mariela: No, we never talk about computers at home.

The only instances where Mariela displays more than a detached relation towards the home computer is when she talks about Carlota's computer use and knowledge.

> Mariela: You know, she feels very special about having a computer. When she invites her little friends at home, she brings them into the room to show it to them.

Carlotta is a 4-year old child. Although quite vivacious, she appeared to be moody during the interview, refusing to answer some questions, jumping up and down and bursting into tears when her father switched off the television. It appears from the interview that she uses the home computer for a variety of activities, including mathematical games, puzzles and the use of a painting package.

> Ernesto: She plays maths games, what is it already? Geometrical games, you know… She plays with Paint, Tomshooter, puzzles… She's got a story book, Beatrix Potter... Counting games. The one she likes the most is the one with jelly beans, she uses it to count…
>
> Carlotta: I don't count! It's the computer that counts!

***Concluding comments***

The case of the Montenegro family, although it covers a relatively narrower range of themes and areas than the other case studies, offers some insights into child-parent relationships as well as gendered relationships around the home computer. In particular, issues related to the status of the computer are raised around the family routines and the organisation of space in the home.

## Section 7: The Harrington family

### *Introduction*

The Harrington are a middle class family living in West London. I visited the Harrington in September 1997 and interviewed four of the five members of the household: Gwendolyn and her three children Oliver, Noreen and Patty. The three children answered politely to my questions but left as soon as their mother allowed them to. Gwendolyn's husband, Dick, was in the house at the time of the interview but was not available to participate to the interview. However, some information could be gathered about Dick from his wife and children.

## *Profile*

| Name | | Dick | Gwendolyn | Oliver | Noreen | Patty |
|---|---|---|---|---|---|---|
| Age at the time of the interview | | Early forties | Early forties | 15 | 13 | 7 |
| Nationality | | British | British | British | British | British |
| Occupation | | Editor | Head hunter | | | |
| Marital status | | Married | | | | |
| Description of the home | | Semi-detached house with garden in West London | | | | |
| Present at the interview? | | No | Yes | Yes | Yes | Yes |
| Computer and related equipment present in the home | | Three IBM PCs<br><br>About to buy a Gateway 2000 PC at the time of the interview.<br><br>Two laser printers, one colour printer | | | | |
| Computer use | Leisure | Unknown | E-mail | E-mail;<br><br>Games (Ski-Free, Solitaire) | E-mail;<br><br>Publisher (programmes for school plays) | Paintbrush;<br><br>CD-ROMs: The Lion King, Electronic Young Telegraph |
| | Education | N.A. | N.A. | Publisher (homework) | Publisher (homework) | N.A. |
| | Work | | Word-processing (reports);<br><br>Presentation software (talks);<br><br>E-mail. | N.A. | N.A. | N.A. |
| | | Maintaining the magazine's web site.<br><br>Database (customer information). | | | | |
| | Family Duties | N.A. | N.A. | N.A. | N.A. | N.A. |

Table 5.7: Profile of the Harrington family

***Description***

Oliver is 15 years old and the oldest child. Although he does use the computer regularly ("it's good for layout and programmes like that"), Oliver reckons that his sister gets "a lot more use out of the computer" ("I'm not like Noreen who does, you know, every possible piece of homework on computer"). He seems quite keen on computer games although he affirms that he does not play much at home ("We don't have a powerful enough computer to play really big games, so we just play the typical games like, Ski-Free and very, you know, one megabyte..."). He feels that some of his friends who own consoles have access to more interesting games and the prospect of playing those games is one of the reasons he goes and visit them. Although she admits that computer games do not eat up much of Oliver's time ("Oliver hasn't really had games that he's got super-involved in"), Gwendolyn considers that he does spend a significant amount of his pocket money on games. Her view is that, on a more general level, he is "quite a consumer-orientated child".

> Gwendolyn: […] Dick started off with computers with the ZX - is it the ZX 81 or something? Way back with Sinclair, he bought one of their computers in 1981 and then he went onto Apricots, and then there were some computers bought out for children, which involved buying a television, I can't remember what it was, so Oliver wanted that, and you know, he's always known what he wanted in terms of electronic goods, you know, he's got a keyboard, he's a got a mini sound system, he's got the radio-cassette players, he's always able to identify what he wants, you know: "I think I need a new watch...". So he would look for new things and new ideas and want them.

Oliver affirms not buying computer magazines because their computer does not cater for games requiring large amounts of memory.

> Oliver: I don't because most of them are game-orientated and because we don't have enough free memory to load games and things like that. I would if I, you know, had the money, regular sum of money to buy it and to load all the free CDs and things like that because we haven't got the power to do that, we don't, no.

However, his mother believes that he does consult publications such as the teenage supplement of the Times (10-15) to learn about the new computer games on the market.

For Oliver, exploring the computer is an activity in itself, and an enjoyable one ("I like discovering what new things do, if I want to, you know, alter the colour or something"). At the time of the interview, he has not yet used the World Wide Web. His explanation is that he finds if "complicated" and "cannot be bothered". However, he does not rule out the possibility to try it out at some point, for example during the school holidays.

> Oliver: I think it would be great fun if you could learn how to use it, it looks great fun but... I think this summer, when I have a three-month holiday, I'll learn to use it but right now I just think I've got other things to do.

Oliver does use e-mail to keep in contact with friends ("I've got a good friend who lives in Australia and we send e-mails to each other")

Noreen is 13 years old and in her 9$^{th}$ grade at the time of the interview. She uses the computer extensively for her academic work.

> Noreen: […] if I have an essay I'd probably spend an hour on it just editing and everything, at least. when I have free time, I just go down and just mess around for about... half an hour to an hour.

Although she does not see much point in surfing the Internet herself ("it takes a long time") her mother reckons that a better knowledge of the Internet may help her daughter with her academic work.

> Gwendolyn: […] yesterday, Noreen was looking for something about the Cathars, for homework, and she couldn't find it and I sort of felt we could have been able to find something on a web site if we knew how to access it properly.

Noreen has been involved in the administrative side of her drama class and has used the computer for that purpose.

> Noreen: […] we just put up productions and, because the people need to know who's being what, then I just sort of tell them in a programme form.

She did not mention computer games spontaneously when asked what she did with her leisure time and she belongs to a group of friends who do not display much interest in computer games.

> LH: [to Noreen] The friends you mentioned, do they have computers?
>
> Noreen: Yes they do.
>
> LH: Do you ever use their computer?
>
> Noreen: Well, no, because... Well, no, I don't, really, because they don't have many programmes on their computers, as far as I know...
>
> LH: So you don't play games together?
>
> Noreen: No, they don't have any games to play.
>
> LH: And they're not interested I guess...
>
> Noreen: Yeah, probably.

Patty is the youngest of the three children. When asked what she does on the computer, Patty mentions her CD-ROM (the Lion King) solitaire and Electronic Young Telegraph ("That's a little club that sends us disks every month"). It is only

after her mother reminds her that she mentions Paintbrush. Patty's use of her mother's computer does not seem to be overly disruptive for Gwendolyn ("I went in yesterday she was playing Hearts on the computer, she'd spend 5 or 10 minutes and then she'll go off"). However, Gwendolyn does admit that the each disks provided through her subscription to the Electronic Young Telegraph "takes up 10 megabytes of memory, which is quite a lot".

The two adults in the household use their home computers extensively for their job. Gwendolyn's working life seems to be a very busy one. In addition to her 'regular' job as a head hunter, she is involved in her husband's business, i.e. editing and publishing a magazine targeted at science teachers in the field of further education. She explains that she mostly works from home ("except when I'm out visiting a client or interviewing candidates") and that her computer is "always on" although she may not use it all the time ("it could be anything from 2 hours to all day. If I do a lot of phone calls then it won't be a lot, if I do more report writing then it will be more").

> Gwendolyn: Let's say you've got an assignment. First of all you have a target list, so each time you make a call, you update your target list, so that's in the computer. Then you're getting your CVs, and you have to write a report on the candidates, so that takes time on the computer, and every time you have meetings or whatever, that's all on the computer. And then I might use it, you know, to e-mail files.

The computer is used for several of the tasks required by the family business. First, the magazine is publicised via the Internet.

> Gwendolyn: […] Our magazine has a web site, that people can visit but we haven't got round to... making the best of it, keeping it updated.

Also, the names and addresses of subscribers are held in a database maintained by two employees that do not belong to the family. However, their work is checked and completed by Gwendolyn.

> Gwendolyn: They put all the new subscribers onto the database and then she brings in the disk, and then that's loaded up on the computer upstairs and then tonight, I will take all the hard copy subs that she's put in and check them, print out the labels...

The database itself was originally designed and is regularly updated by a family friend.

> Gwendolyn: [...] Patrick wrote our Access programme for the database: we said what we wanted and he manipulated the programme to get what we want. It's not perfect. We keep sort of updating it. He's quite good at sitting down, seeing what the problems are.

Although I did not have the opportunity to interview Dick, I did gather some second-hand information about him. The impression I got from his family is that he "never stops" working ("8 o'clock in the morning till 8 o'clock at night, seven days a week..." "Two in the morning."). Gwendolyn explains that the business is still in its infancy stage and therefore requires a large amount of work.

> Gwendolyn: We started a business in - how long was it? January 96? - and it's a publishing business. And Dick is the publisher. You know, when you're starting up a business you've got to get going, so that's what he does.

The presence of computers in the home appears to be a necessity both for Gwendolyn and for Dick. The merging of home and workplace is a significant element in the Harrington's daily life. In particular, the fact that Dick's business is run from home has several implications for family life. First, the business employs two persons who are not members of the household but who work partly at the

Harrington's home. Second, the fact that the business is based in the home makes it easier for the Harrington parents to involve their children in the day-to-day running of the business. According to Gwendolyn, the children are required to help at those times when the workload is heavier (for example when the magazine is to be dispatched) but they are given the easiest tasks and are paid for their work. It seems that the children rarely volunteer for this sort of work unless they are short of money. The relationship between family budget, job-related activities and home computers will be discussed further in Chapter Six.

The fact that home computers are used both as a work tool and for educational and recreational purposes gives rise to some conflict.

> Gwendolyn: I don't want games on my computer taking up memory that I need.
>
> [...]
>
> Gwendolyn: There are conflicts sometimes... Conflict for computer time, it involves the CD-ROM if they want to look up things on the CD-ROM and it's, let's say if it's before six o'clock so I'm still at the computer. Or if they've got homework, Noreen uses Publisher quite well and she likes to use that for her homework, when I might want to use it myself, but on the whole... it's not too bad.

The following interview excerpt highlights how Gwendolyn makes it clear to her children that the new computer she has ordered is intended to be not a shared but a personal piece of equipment.

> Gwendolyn: Yes, I'm having a new one [computer].
>
> Oliver: Is it a very good one?
>
> Gwendolyn: It's a Gateway.
>
> Oliver: Gateway 2000?

Gwendolyn: Gateway something.

Oliver: Will it cover games and things like that?

Gwendolyn: I expect so…

Oliver: Yes!

Gwendolyn: But it will be mine!

There are also indications that by acquiring this new computer, Gwendolyn detaches herself from her role as arbitrator in the computer allocation process.

> Gwendolyn: I'm about to get a new computer so this one that I have got with a CD-ROM will then go upstairs and then they'll all have to fight for that one…

It is interesting to note that, while Gwendolyn considers the allocation of time and space around the home computer to go quite smoothly within her own family, she cites the case of family friends for whom computer allocation has become a serious issue.

> Gwendolyn: [...] But, we have friends in Whitchester and they've just upgraded to Gateway and they've got all these games and they have to book time in because it would lead to serious arguments over who is on the computer...

***Concluding comments***

The case of the Harrington family offers some distinctive characteristics. First, it is the only family that uses more than two home computers at a time (at the time of the interview, three computers are in use in the home and the family plans to acquire a fourth within a week). Second, it is the only family where two members have a full-time home-based job that involves heavy use of a dedicated or semi-

dedicated computer. Many issues related to the boundaries between work and 'non-work' as well as issues of sharing and negotiating come forth during the interview.

## Section 8: The Ahmed family

### *Introduction*

I did not originally intend to include the case of the Ahmed family in the 'core ' of the empirical work. My interview with Ehsan and his cousin took place at the very beginning of my research work and my sole purpose at that stage was to 'test' an interview guideline that had derived form an early version of my 'framework'. Although his interview had a 'tentative' feel to it, it did bring up a number of interesting and original themes, which eventually prompted me to turn it into one of the case studies for this research.

## *Profile*

| Name | | Mr. Ahmed | Mrs Ahmed | Fahmida | Nahija | Ehsan | Tamim | Nasif | Tarana |
|---|---|---|---|---|---|---|---|---|---|
| Age at the time of the interview | | Died at 55 in 1994 | 45 | 24 | 21 | 20 | 7 | 15 | 12 |
| Nationality | | Bangladeshi, immigrated to Britain | | British | British | British | British | British | British |
| Occupation | | (Was) unemp-loyed | House-wife | House-wife | House-wife | Student | Student | | |
| Marital status | | Married | | Married | Married | Single | Single | | |
| Present at the interview? | | N.A. | No | No | No | Yes | No | No | No |
| Computer and related equipment present in the home | | Atari ST, bought second hand in 1990 and packed away in 1993 | | | | | | | |
| Computer use | Leisure | N.A. | N.A. | N.A. | N.A. | Games | Games; Drawing Music (compo-sing). | Games | |
| | Work | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| | Education | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | High school home-work | N.A. |
| | Family duties | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| Other | | "At the time, there were also the 3 kids of Fahmida (6 year old, 3 year old and 2 year old) living at home. And then, in the space of 18 months we went from 11 to 4. Fahmida and her kids left, Nahija left, my father passed away and I went to University." | | | | | | | |

Table 5.8: Profile of the Ahmed family

***Description***

A number of features contribute to making the Ahmed family original. First, their background is rather different from that of the other interviewed families. Both parents have emigrated from Bangladesh and none of them has ever been in long-term employment. Ehsan is the third of six children but, in many instances, seems to play the role of the eldest, at least when interacting with his younger brothers and sister. However, this role seems to go beyond that of typical elder children. For example, he feels particularly responsible for the education of the younger members of the family, both in terms of academic work and computer literacy. It is therefore not surprising to see that Ehsan bore the total cost of the hardware and the initial software.

The role of the computer within the family contrasts significantly with its role beyond the confines of the home. Outside the home, the acquisition of the computer seems to have been instrumental in integrating the three brothers in a 'computer community'.

> LH: Why did you buy the computer?
>
> Ehsan: Just to have a computer, I guess. Everyone was buying either this one or an Amiga, friends of my brothers, and my friends as well.
>
> [...]
>
> Ehsan […] Tamim used to go round his friend's house who had a computer and showed him how to use it. That started a year before he got the computer at home.

In particular, Ehsan relates his surprise when discovering the existence of this 'sub-culture' in what appears to him as ordinary places and when experiencing how easily he and his brothers were granted access to what had first appeared to him as 'underground activities' such as pirating or swapping games.

> Ehsan […] They have a section 'articles for sale'. Basically it was selling, but if you had a game to swap, it was swapping. And the more games you had the most likely you were to have a game that would interest others. I was always aware that such things were going on but I thought you had to be some kind of member of something, then I found out it was happening in the streets, in the schools.

However, when we start considering the role of the home computer within the home, the first notion that springs to mind is that of conflict. Conflict appears to be present at various levels within the Ahmed family: between parents and children, between Ehsan and his brothers, between Tarana and Nasif and, to a lesser extent between Tarana and her two other brothers. The conflict between parents and children manifests itself through fundamental differences in interests and priorities. The source of the conflict seems to be twofold. First, Ehsan disagrees with his parents regarding the importance of academic and related knowledge. Second, religious practice, which is a priority for the adult members of the household, is sometimes neglected by younger members of the family. Both sources of conflict play a role in widening the gap between children's and parents' attitude towards the computer.

It must be noted, however, that not all subjects of dissension are dealt with in the same way: some are openly discussed and argued while others remain the source of

unexpressed tension. Ehsan's parents generally disapprove of the presence of the computer in the home, but do not seem to voice their opposition very openly.

> LH: Do your parents try to control your computer usage? -
>
> Ehsan: They didn't check on us but they weren't happy at all with it.

The topic of academic work seems to be mentioned or at least hinted at more overtly. Ehsan and his parents have opposite and perhaps conflicting attitudes towards academic work.

> Ehsan: […] they think I'm studying too much. They discourage me to work. They have no idea, they're thinking we're being slave driven. They can't imagine that it's what I've chosen. What they're used to back in Bangladesh: you go to school …my father went up to the age of 12… you go back home and you help with the home and working in the field or at the farm. You don't have to do homework.
>
> [...]
>
> Ehsan: My parents are not involved at all with homework. Actually, they think they're doing too much of it.

Ehsan's perceived duty towards his brothers and sister seems to stem at least partly from his opposition to his parents regarding the need to do well at school.

> Ehsan: Most parents buy it to give a good start to their children, to provide them with a computer when they're young. The reason I bought it is that. My parents didn't do that for me so I thought I would do it for them [my brothers].

The issue of Mosque attendance seems to have provoked more dramatic reactions from the parents' part.

> Ehsan: My mum was a bit more lenient. She didn't initially mind. But at some point, Tamim started to get so much hooked on it he wasn't going to prayer any more. That's when she threatened to chuck it out of the window.
>
> LH: What kind of prayer?

> Ehsan: You're supposed to go to the mosque three times a day. The times change but typically it's like 5:00 a.m., 7:00 a.m. and 9:00 p.m. My father, Nasif and I, we went every day of the week, 2 to 3 times. And sometimes Tamim did not, so it caused a lot of tension. The thing is… when you play a game, you don't really get into it before, say, 20 minutes, half an hour and then it was too much of a distraction to stop the game and go to the Mosque.

The conflict between Ehsan and his brothers seems to be mainly related to the computer and its usage. First, Ehsan felt unhappy about the amount of time his brothers dedicated to game playing as opposed to other things. Also and, perhaps, more importantly, he was annoyed with how much the computer seemed to occupy his thoughts as well as his brothers' ("it was taking over our lives"). Another issue seems to be of similar importance, although it is not often mentioned during the interview: the cost of the equipment is entirely covered by Ehsan, although the choice of computer seems to have been made by his brothers.

> LH: Who was consulted when it came to buying hardware and software?
>
> Ehsan: Me, because I was the one who was paying for it, but my two brothers told me what to buy because they knew more.

The purchase of the computer seems to have represented quite a large proportion of the budget available for Ehsan and his brothers.

> Ehsan: My earnings were £2,500 to £3,000 a year. I've spent £1,000 over 3 years. Actually, most of that was spent in the first year. So in the first year, it was about one third.

The conflict between Tarana and her brothers uncovers other interesting aspects of family life in the Ahmed household. First, it is remarkable that Ehsan did not mention that particular conflict before his cousin's intervention.

> LH: Was there any conflict over the allocation of computer time?

> Ehsan: No. Lots of games you can play when you're two. So, two of us would play and the other one would watch. I can't remember we had to fight for it or something.
>
> Saiful [Ehsan's cousin]: Hm…, don't you think there was a problem between Tarana and Nasif?
>
> Ehsan: Well, yes, in a way. Tarana wanted to play more than she did and Nasif wouldn't let her, because he's good at games and, because she was young, she was not good at games. He would tell her things like 'Go away! This is a boys' game!' Tamim and I would tolerate her, we had no problem with her. But Nasif and Tarana don't get on with other things anyway. They are the two youngest.

At first, the conflict is described as being limited to an opposition between Tarana and Nasif. But, there also seems to be an underlying tension between Tarana and the two other brothers although it is not reported as such. Ehsan's further comments also reveal some gender 'bias' from his part and from the part of his parents.

> Ehsan: I didn't think about my sister: she hadn't shown interest in it, she was seven or eight and she's a girl. It's not me being sexist or anything, it's in our culture. My older sisters, they don't work. My parents wouldn't have let her [Tarana] spend time with it [the computer]. Or they'd say: "you can play but just five minutes".
>
> LH: Did they say that to your brothers or you?
>
> Ehsan: No.

At some point in time, the three brothers and their brother-in-law discussed a project involving the use of the computer for business purposes. The project consisted in devising menu cards for a number of different restaurants on the computer. The project was expected to combine Ehsan's brother-in-law's insider knowledge of the restaurant market and Tamim's drawing skills. The project did

not seem to materialise because of the expected amount of the initial investment looked unreasonable.

> LH: Has the computer been used for any kind of paid work?
>
> Ehsan: We had a project but it never came through. It was my sister's husband. He thought maybe we could make menu cards for restaurants. He worked in a restaurant and had lots of contacts… at least 40 different restaurants. We spent two-three weeks planning everything but we dropped the idea because we realised we would have to buy a PC and a laser printer, which is far too much expenditure.
>
> LH: Who would have been involved in this project?
>
> Ehsan: It would have been, well, my brother in law, and Tamim, he had the skills in drawing, and Nasif.

The notion of family time within the household seems to crystallise around the daily visits to the Mosque for the male members of the family. The prayer is the only activity mentioned during the interview that seems to involve both parents and children at the same time.

The notion of time seems to have played a central role in Ehsan's feelings towards the computer and his final decision to remove it. He seems to recall quite precisely the amount of time spent by his brothers and him on the computer. ("For me, at the height, a couple of hours a day. For Nasif it was the same. Tamim, up to 5 hours a day"). While stating the facts, Ehsan also communicates his own opinion ("He was spending his whole time on it. …it was taking over our lives"). The other dimension worth mentioning is the notion of space. The usage of space within the household, or more specifically within the boys' room points towards the

importance of the role played by the computer for the children, and especially, the three brothers ('It was either the computer or the video').

***Concluding comments***

The Ahmed family is very 'atypical' in many respects. The lack of initial involvement of the parents, the strong motivation of Ehsan, the dramatic implications of computer use within the family all contribute to making this case original. However, we also find more 'generic' issues and concerns throughout this case study, such as issues of budget, gender relations, status and affiliation.

# CHAPTER SIX: ANALYSIS OF THE FINDINGS

> Je crois que l'automobile est auhourd'hui l'équivalent assez exact des grandes cathédrales gothiques: je veux dire une grande création d'époque, conçue passionnément par des artistes inconnus, consommée dans son image, sinon dans son usage, par un peuple entier qui s'approprie en elle un objet parfaitement magique.
>
> I think that cars today are almost the exact equivalent of the great Gothic cathedrals: I mean the supreme creation of an era, conceived with passion by unknown artists, and consumed in image if not in usage by a whole population which appropriates them as a purely magical object.
>
> Roland Barthes, Mythologies (1957)

> I assure you these things don't happen without the help of many potions and spells and magic wheels.
>
> Xenophon, *Memorabilia*

## Section 1: Introduction

This chapter analyses the interviews presented in Chapter Five. This analysis uses the themes presented in Chapters Two and Four as a starting point, and then develops into a discussion of a much wider array of areas. This process of uncovering themes and issues beyond those identified from the literature represents a crucial step in this research. As discussed in Chapter Four, the purpose of having a 'framework' is not to make the findings fit neatly and tidily into it, but to uncover those very areas that do not 'fit' and that demand a reconsideration of the initial framework.

Sections 2 and 3 start with exploring the themes that emerged from the literature review and that were developed in the framework: gender, intergenerational relationships, time, space and budget. However, through the in-depth analysis of those themes, and in the light of the empirical data, a number of new 'emergent' themes come to light and are explored in parallel. Such themes include the notions of status and identity, as well as the notions of knowledge and interest as resources and new dimensions in the notion of time. Throughout this chapter, we investigate the ways the 'old' and 'new' themes inter-relate within the realm of the collected data. In particular, we will see how the concepts of domesticity and domestication pervade those themes and bring them together in a more coherent whole.

## Section 2: Attitude towards the home computer, patterns of use and family relationships

The review of the literature on technology in and outside the home (Chapter Two) revealed the existence of considerable concern for gender differences in relation with technology. We have also seen (Chapter One) that many research works on domesticity have identified the domestic sphere as typically a female environment. This led us to identify gender as one of the leading themes of this research. We therefore embarked on a systematic investigation of the empirical data, expecting to identify a wealth of gender-related issues from this analysis. However, this effort did not prove as fruitful as was originally expected. A first realisation was that no general pattern linking gender and computer use could be identified among the seven families studied for this research. This drove us to use an alternative procedure, namely to study every family as a separate unit of investigation and try

and identify gender-related issues within each of them. The use of such alternative method helped in revealing more gender-related issues, but neither the amount nor the quality of this data allowed for a satisfactory overall analysis of gender issues. This may have been the result of the combination of two factors. First, very few respondents discussed the issue of gender relationship directly, and, when they did so, often tried to retract or at least temper their words. Second, and perhaps more importantly, when observing differences in attitude or behaviour towards the home computer, it is often difficult to know whether to impute them to gender differences or to other factors, including personal experiences, environment, personality, or even mood at the time of the interview.

In carrying out an investigation aimed at finding gender differences in computer use and in attitude towards the home computer, we discovered a wealth of other issues that may have influenced attitudes and opinions. This section is therefore more than a description of the gender-related themes issuing from the empirical data. It presents the findings in a new light and, throughout this process, highlights the need to consider gender or 'gender differences' not as a black box but as a notion intricately linked with other concepts such as resources, identity and symbolism.

***Differences in attitude among children and teenagers***

Gender differences around the computer are often more perceptible between children than between adults, perhaps because children are typically less concerned with the need to appear 'politically correct' than their adult counterparts. The most

candid account of gender conflict around the home computer can be found in the study of the Ahmed family. Ehsan describes how the tension between Tarana and her brothers - although it is probably not exclusively related to the home computer - crystallises around the use of computer games. Such tension is particularly visible with Nasif who overtly prevents Tarana from playing games. Ehsan's explanation for Tarana's exclusion from computer game activities is that she is young and "not good at games" and that Nasif and her "don't get on with other things anyway". But Nasif's words are symptomatic of a stereotypical gender 'war' ("go away, this is a boys' game") between him and his sister. Ehsan himself admits that he "did not think" about his sister with regards to the home computer and explains that his parents were more stringent towards Tarana's computer use than towards her brothers'.

The conflict within the O'Leary children is of a different nature, perhaps because they are slightly older than the Ahmed children. Carita and Jeremiah do not appear to have many major open conflicts about the allocation of computer use, as their mother, Trini, is proud to point out ("they're quite sensible kids", "they never fight or anything like that"). The difference between Jeremiah and Carita resides more in their attitude towards the computer, and their assiduity in lobbying for the purchase of extra equipment, in particular, at the time of the interview, for the acquisition of a modem. Carita does use the computer for a series of tasks, some of which are related to her academic work, which her mother considers as particularly important. However, she does not share Jeremiah's enthusiasm regarding the possibility of acquiring a modem, which obviously hinders her brother's efforts to persuade his

mother. Trini mentions that Carita "doesn't care about a modem" ("She'd like a mobile [phone] much more than a modem") and hints that her lack of interest is related to her gender.

The difference in attitudes between the O'Leary children comprises many more aspects than merely gender differences. The issue of enthusiasm, interest or the lack of those elements when dealing with home computers will be developed in more detail in Section 4. The role played by the home computer in building Jeremiah's status and identity within a tightly knit circle of friends will also be discussed in Section 4.

Another illustration of the gender divide among children can be derived from one of my conversations with the only child member of the Crabtree family, Hilda, who often goes to visit a boy of her age who "lives at the end of the road". Playing video games is presumably only one of various activities the children carry out together. However, it is the only activity Hilda mentions when asked about what she and David spend time doing together. It may be suggested that playing video games represents a significant experience for Hilda not so much because of the game itself but because of the marked difference in interest and involvement between the two children. Hilda is very aware that playing video games, which starts off as a shared activity, can also become an element of dissension when she loses interest in the game while David is still engrossed in it ("sometimes in some games, he wants to go on and on"). Hilda's loss of interest translates into her interrupting her activity and letting David continue with it by himself ("I just leave him. He plays by himself. I just go off").

Although it is not clear whether this difference in interest is due to the gender difference or to other factors, the above conversation recalls the stereotypical picture of boys being more engrossed in computer games than girls (Funk and Buchman, 1996a, 1996b; Shashaani, 1994; Griffiths and Hunt, 1995; Griffiths, 1997; Comber *et al.*, 1997).

***Differences in attitude and patterns of use among adults***

In trying to find gender differences among adults, we quickly realised that, although we could find distinct variations in patterns of use and attitudes towards the home computer, such differences could be the result of many other factors. Throughout the following paragraphs, we will present a number of findings of differences between male and female adult members of the interviewed families. Such differences may be interpreted and explained as gender difference, but further analysis of the data reveals that such an interpretation would be at best superficial. Other factors such as formative experiences with computers in or outside the home, and beliefs regarding the qualities and potential of the home computer play an equal if not greater role into the building of individual attitudes towards the home computer.

In the Crabtree family, Cassandra is the main computer user. This is due to two main factors. First, she is the one who purchased the computer - from one of her former workplaces. Second, she has considerably more computer knowledge than Duncan has, which is probably due to her exposure to computers during the various jobs she performs through her temping work. Duncan does express some interest in

computers although his assertion that he would like a laptop computer prompts a reaction of surprise in Cassandra. However, this interest in computers does not translate into any use of the home computer. Despite a remarkable difference in terms of computer usage, Duncan and Cassandra do not seem to have too different an opinion of the general contribution of information technology to society. They both consider computer technology as a 'time-liberator' but fear its noxious influence when used as part of the 'corporate machine'. One of Duncan's comments on that topic is particularly revealing of some deep pessimism: "We're standing around watching the devil play and we're not doing anything".

Differences in opinion are much starker in the Sharma couple, although they are seldom expressed openly. Bernard and Teresa see the computer from two very different perspectives. While Theresa avoids using and even participating in talks or discussions around the home computer, Bernard is an unequivocal advocate for the home computer. It is important to observe that, although he has set himself the role of the 'sponsor' of the home computer, Bernard does not use the computer as often or as extensively as his daughters do (a fact revealed by an examination of the 'computer diaries' placed in the family). In his eyes, the home computer is primarily an educational tool for his daughters and only secondarily an instrument facilitating his own professional and leisure enterprises. An excerpt from the interviews might be worth quoting again here.

> Bernard: I expected it would be difficult for them [Maia and Nicola] if they didn't have one [a computer]. I think it's important for them, I mean, in this day and age… I want them to have the best education possible. Then… then, they can choose what they do with it. But when you don't have an education,

> you have no choice… I had no choice… There are opportunities out there but you have to give yourself the chance to… to pick them up. And for that you need an education… and direction. […] And the computer… the computer facilitates that. It won't do the work for you but it will facilitate it… it will make it easier, or more fun, or… It's a tool. But, in this day and age, I think it's a necessary tool.

The above monologue reveals many significant elements. First, the length of the statement denotes Bernard's preoccupation with the computer and its educational potential. Second, Bernard's own first-hand experience of the consequences of not having had 'an education' motivates his involvement in his daughters' educational activities. He draws a direct comparison between his daughters' life and his own youth. His view is that education will bring about 'choice' and the chance to make the best of 'opportunities' and that the computer 'facilitates' the educational process by making it 'easier, or more fun'.

The different meanings attributed to the computer in the Sharma family may help understand the ambiguous status of the computer in the home. Where Bernard sees a symbol of learning and freedom, Teresa only notices the (mainly negative) practical implications of having a computer at home. For Bernard, the home computer clearly symbolises his involvement in his daughters' education and illustrates his dedication as a parent. In contrast, Teresa tends to see the home computer more as a mere object that disrupts what she considers to be the smooth functioning of the household. Outside elements may have played a role in the shaping of Teresa's attitude towards the computer, one of which seems to be her experience with computers at her workplace. Her first statement about

computerisation at her hospital was broadly negative but the issue did not seem to affect her excessively.

Teresa: They're thinking of starting it up but no one seems to want it.

However, the comment made by Nicola in her absence ("she says there are computer people all over the hospital and that they're a pain...") revealed that the computerisation of her workplace might have affected her more than she wants to admit. In avoiding and, to some extent, rejecting the computer in the home, Teresa seems to make a silent statement about her work experience, and that the computer, being a work object, has no place within the domestic sphere.

The Williams household offers another illustration of competing attitudes towards the home computer within a couple. In contrast with the Crabtree and the Sharma families, Daffyd and Jane Williams are both computer users within and outside the home. However, they seem to relate very differently to the home computer and to technology in general. Various indications are given throughout the four interviews that Daffyd's interest in computers outgrows that of the two other members of the household and that his opinion generally prevails when it comes to make a decision over computer matters. The home computer fulfils several needs in Daffyd's life, allowing him to relax, keep up-to-date with the latest developments in his areas of interest and test (as well as maintain) his programming abilities. Although Daffyd insists that the computer is "only a tool to do other things", many elements from the conversations point towards the hypothesis that the computer means much more to him than he would like to admit throughout the interviews. In particular, the home computer seems to have played a considerable role in the making of Daffyd's

identity, both at a professional and at a personal level. He is very aware of having had an unconventional career path and insists that, although being a teacher is currently what he 'does', it is not what he 'is' ("I consider myself to be a physicist, not a teacher"). His disenchantment with the world of teaching is probably his major motivation for wishing to return to a career in the defence field and he intends to use his home computer as an asset for this career move by using e-mail, word-processing and the Internet throughout his job hunting process. Daffyd also sees his computer knowledge as a 'marketable' asset when applying for jobs and is keen to develop it on his home computer. However, his approach to developing those skills is essentially playful. Most of his programming projects, even those that have very practical applications (such as the mathematical series programme he wrote to help Jane solve an A-level project problem) seem to be undertaken as a challenge, a way to test his own programming skills.

In contrast with Daffyd, Jane appears to have a purely utilitarian view of the computer: she does make use of it and recognises that it is "useful for certain things" but she is deeply aware of its unpleasant or cumbersome aspects. She uses the computer for a variety of tasks, most of which are related either to her job as a teacher or to her duties as an orchestra manager. Throughout the interviews, we gathered that there is a considerable pressure from the school authorities to perform certain tasks with help of a computer and that she does not always adhere to the point of view that such pressure is justified. She is sometimes able to bypass the school policy to "have everything typed". She refers to the frustration involved in trying to "get Greek letters, all the mathematical symbols" from the word-processor

and she mentions the time "wasted on trying to fit diagrams up to the page". She is also acutely aware of role computer use played in bringing about "disasters in the exam paper" at her school. This awareness of the unpleasant or negative aspects of the computer does not, however, translate in any rejection or avoidance of the home computer. Jane does use the home computer regularly and seems to have found at least as many, if not more, practical uses for it as her husband or her son.

It could be suggested that it is precisely through her difficult experience with computers at her school that Jane has developed a pragmatic perspective on computer use that makes her a selective but effective user of the home computer. In other words, gaining an understanding of the weaknesses and limitations of computers, either at work or in the home, may also play a big part in the process of domestication of home computers. This example offers us some further insight in to the process of domestication of the home computer (and, by extension, of other objects or ideas). If we understand the concept of domestication as making an object or idea 'fit' or acceptable for home use, we can see that such object or idea needs not be ideal or idealised. On the contrary, an awareness of their negative aspects or shortcomings may help build a picture of such object or idea as more 'human', commonplace or homely, thereby rendering it less intimidating or threatening (Silverstone and Haddon, 1996).

In summary, we can see that, although this section started with being an exploration of the issue of gender around home computing, it uncovered a wealth of other notions that contribute to shaping the attitude of families and family members towards computers and computing in the domestic sphere. For example, the data

suggests that former experience with computers - in particular within the world of work - participates in shaping opinions about home computers. But other, less 'tangible' elements also come into play. In particular, beliefs or 'ideology' may participate in the process of articulating one's ideas and opinions around home computer technology. Differences in ideas and opinions can then help us elucidate the existence of conflicts around the home computer and, in particular, around the extent to which it is thought of and accepted as a domestic or 'domesticable' object. Section 4 will investigate in more detail those emergent themes, and set out to elucidate the interconnection between them.

***Intergenerational relationships and computer use***

In this analysis, we next move to explore the intergenerational relationships revealed around the home computer. The accounts from the interviews show that the role played by parents in monitoring their children's computer use varies from one family to another. It is not surprising to see that computer games are one of the main focuses of attention, both for parents and for children. The Ahmed family offers an example of parents who are apparently uninvolved with the home computer, who did not participate in the decision to buy or in the financing of the hardware and software, but who do show some concern about what they perceive as the negative consequences of computer games. For example, Section 3 will describe in more detail how Mrs Ahmed's attitude towards the computer changed when she realised that computer games curtailed Tamim's mosque attendance.

Some concern over computer usage is also found in other families. For example, because Hilda Crabtree does not live with Duncan and Cassandra on a full-time basis, it is not always possible for them to monitor her use of computer games. This does not appear to be a primary worry to any of them, but they do mention their lack of control as to what Hilda does when she is at her mother's place ("She plays at her Mummy's and she's not always there").

Ernesto and Mariela Montenegro do not seem to be overly concerned with their daughter's use of computer games either. Ernesto actively encourages his daughter to play some games that he believes are of 'educational' value ("She plays maths games[...] Geometrical games [...] Counting games.") It is interesting to note that although the Montenegro parents do not object to Carlotta's use of computer games, they do declare that she watches too much television.

> Mariela: ... if we weren't studying she wouldn't watch the television that much.

When considering relationships around the home computer in the Harrington family, one notices that the main source of disagreement resides in the fact that Gwendolyn uses her computer almost exclusively for work whereas her children use it (or wish to use it) primarily for leisure-oriented activities. It is interesting to see that conflict around the computer is not only related to the allocation of computer time but also to the allocation of disk space ("I don't want games on my computer taking up memory that I need"). Conflicts arising within the Sharma family are seen in a very different way depending whether they involve an adult member of the family or not. Bernard does not consent to any compromise with his

daughters when he needs the computer ("I rule. If it's important for me, then they come off"), but will not intervene if a conflict arises between his daughters except in those cases where the conflict involves homework.

On the whole, the empirical data provides relatively few elements that point towards the existence of major intergenerational 'gaps' regarding the use of computers in the domestic sphere. We can also see that there is generally some concern about how those 'gaps' should be handled but that such concern is rarely excessive. However, an analysis of intergenerational relationships should not be restricted to the study of intergenerational 'gaps' or differences. The role of the home computer as an element that links generations is at least as important. In particular, the perceived role of the home computer as enabling a broad and solid education and eventually a brighter future for younger generations is a powerful concept amongst parents. Bernard Sharma's case epitomises this argument of course, but there are indications that this link between generations is present to a greater or lesser degree in at least six of the seven families studied here. The exception here is the Ahmed family, where the decision-making process regarding the acquisition of both hardware and software seems to have taken place without any impetus or even consultation of any of the parents or older members of the family. However, we could argue that the process of home computer acquisition in the Ahmed family is also an 'intergenerational affair' after a fashion. When Ehsan takes the decision to buy a home computer, he engages in a process whereby he almost explicitly plays the role a parent or 'parent-substitute'.

***Other family relationships and computer usage***

Although this study focuses more particularly on the domestic sphere, it is also about the family. And the cases described here illustrate that families go well beyond the walls of the home when it comes to using, maintaining and even thinking of the home computer. For example, Daffyd Williams's accounts reveal the existence both of tight co-operation and of a certain rivalry around home computer issues throughout the extended family. Among other things, Daffyd uses e-mail to maintain contact with relatives, in particular, his brother. During the first interview, Jane noticed that they "never wrote a single letter to each other before but since they have e-mail they must have corresponded about six times". One could have thought that this outburst of e-mails was only due to the novelty effect of having an Internet connection, but a year later, they were still corresponding through e-mail relatively regularly, as well as through the fax machine.

Daffyd makes intensive use of an 'extended family network' that provides him regularly with software packages. However, Daffyd is not merely at the 'receiving end' of this family network. He has also helped his brother setting up a web site for the parish of which he is the pastor. His contribution to his brother's work consists of accessing this web page or the Internet and carrying on some 'quality assurance' tests such as trying out the links with other web pages of with the e-mail system. Such tests led to the discovery of a malfunction in the "getting comments back" function. Daffyd's role in helping his mother-in-law's tax declaration is another example of home computer use involving members of the family who are not living in the household.

Another example of family co-operation beyond the domestic sphere may be found in the case of the Harrington family, where one of the printers has been provided by Gwendolyn's father who could not find any use for it:

> Gwendolyn: […] My father won that colour printer in a competition, and he hasn't got a computer so he's given us the printer, so they have a colour printer upstairs.

The most striking example of extended family members co-operating around the home computer can probably be found in the case of the Crabtree family, where Cassandra relies highly on the help and opinion of her stepdaughter's mother's boyfriend, Bennett (see Section 4). Bennett is also her main supplier of software and games.

In addition, we have seen that Daffyd's opinion about computers and information technology issues is significantly shaped by his observations of his brother's and his brother-in-law's experiences. Another interesting issue around the home computer is that of sibling rivalry among adults. This issue comes up in several instances throughout the interview with the Williams family and is mentioned not only by Jane and Richard, but also by Daffyd himself. Jane believes that Daffyd's wish to upgrade his computer stems from a feeling of inadequacy towards his brother and brother-in-law who have been able to install more up-to-date software such as Windows 95 or Windows 98.

> Jane: He only wants to upgrade it because his brother's got a more up-to-date one. In fact, he's got an older computer but he managed to upgrade it twice, so it's much faster than this one. [...] He's pretty disappointed about that because he hoped he could upgrade it.
>
> LH: Just to keep up with his brother?

Jane: Yes, I would say so. And his brother-in-law…

Daffyd actually agrees with Jane's interpretation of the situation. When he mentions the last e-mail he received from his brother (that had three picture files attached to it), he reflects:

> Daffyd: [...] What he says is: I should get a scanner, that's what he's saying. 'I'm more up-to-date than you are'. Sibling rivalry, that's what it's called.

In this section, we have seen that when it comes to computer-related activities, whether it is swapping software or looking for advice, or computer-related attitudes, the notion of family goes well beyond the walls of the home. The relatives or members of the extended family do not always enter the home 'physically' (as Daffyd's use of software originating from a relative that he has never met illustrates), but, through the home computer, they are certainly 'present' within the domestic sphere.

## Section 3: An investigation of three family resources: time, space and budget

The themes discussed in this section, time, space and budget, have been identified both in Chapter Two and in Chapter Four as central to an analysis of home computers in the family. They are examined in sequence in three subsections but this examination is only the first step towards the next level of analysis, namely the identification of new related (or unrelated) themes and issues. Such themes sometimes pervade two or all three notions of time, space and budget and help bringing them together. But also and perhaps more importantly, they allow for a

deeper and broader understanding of family life around the computer, as discussed in later sections.

### *Time*

These accounts seem to show that there is a certain pace built into the use of computers in (and outside) the home. The home computer participates in, transforms and sometimes sets the tempo of the family. It modulates the use of time and intensifies the meaning of the notion of time. A new game, a new piece of equipment intensifies activities and focuses them, at least for a period of time. The home computer also dislocates time, and, in that process, draws attention towards the existence and the passing of time, the role of time as a resource and as a central element of family life. In this section, we choose to only consider time as a resource that is used, shared and negotiated in the family and leave the investigation of other aspects of time, such as its role as a cyclical entity, for later (Section 4).

One of the most prominent aspects of family time around the computer is the idea of time allocation. Conceiving time as a limited and often scarce resource to be shared between different members of the family helps us perceive and understand the existence of conflicts around the computer. The case of the Sharma family offers an example of multi-level conflicts over time allocation and multi-level answers to those conflicts. The two levels of conflict we identified here are intergenerational conflicts (between Bernard and his daughters) and inter-siblings conflicts between Nicola and Maia. As noted in Section 2, those two types of conflicts are dealt with in two very different ways. When there is a conflict between

Bernard and his daughters, his needs have priority over his daughters'. When conflict appears between Maia and Nicola, Bernard intervenes to ensure that whoever wants to use the computer for homework takes precedence. However, when the conflict does not involve homework, Bernard prefers to let his daughters deal with it by themselves. As a result, Maia and Nicola have established a 'taking turns' routine, which does not follow any time-related rule but is solely based on the failure or success of the player at a particular game. Nicola's complaint refers to her inability to make computer games last long enough, which she compares with her sister's relative advantage over her. Conversely, Maia would tend to favour a 'one game each' routine, which would allow her to spend a longer amount of time playing games.

In the Sharma family, the attitude of the two parents differs also regarding the use of time around the home computer. In particular, Bernard tends to sympathise more than Teresa does when his daughters' game-playing stretches over longer periods of time than expected. This may be due to several factors. First, Bernard is a computer game player himself and has gathered first-hand experience of the difficulties to stop playing a computer game before having reached the end ("when you are playing games you can't just stop and walk away. You've got to finish the game"). Second, it might be hypothesised that Bernard could find it difficult to express any negative feelings regarding his daughters' use of the home computer because of his awareness of his role as the family's 'computer sponsor'. However, Bernard does not stand for an indiscriminate use of the home computer, as his reluctance to acquire a modem illustrates.

The issue of time allocation is also prominent in the case of the Harrington family. The three children negotiate access to the computer between themselves for homework or games, based on the perceived priority of the activity, which seems to sometimes cause some problems.

> Noreen: If we both need to use the computer, we sort of need to work out which is more important and that causes problems if we don't both agree on the same ... level.

In addition, Gwendolyn mentions the presence of conflict for computer time around the computer she uses for work. In her case, conflict arises mostly when her children wish to access her computer before six o'clock. This six o'clock limit represents a significant demarcation in the life of the Harrington family and in the 'life' of Gwendolyn's computer. At this particular point in time, the status of the computer switches from being a work tool exclusively dedicated to Gwendolyn's job activities to being a much more 'shared' and multi-functional object. It would be tempting to interpret the situation as merely reflecting a 'dual' nature of the computer, constantly witching from an undomestic work-oriented state to a domestic, family-oriented one. However, we would suggest that the process of domestication of Gwendolyn's computer happens at all times and not only at night when it is used for non-work purposes. The very existence of a 'role switching' routine reveals that the home computer finds its place, is being incorporated into the life of the family, not only as a leisure and educational object but also as a work object.

***Space***

This thesis has repeatedly argued that the computer is 'not just an object', or is 'more than an object'. However, it cannot be denied that the computer is a physical article with specific physical features, which 'fits' more in certain geographical domains than others. In particular, its voluminous aspect, its distinctive shape, colour and appearance participate in making it look intrusive or out of place within the domestic landscape. It may be reminded here that the computer was originally designed for the world of work and remains an article that clashes with most interiors. This section, however, deals not just with the physical integration of the home computer in the domestic space but also with its 'mental' or even 'emotional' integration in the family space, which is at the core of the investigation of this thesis.

We would suggest that the place of the computer in the home reveals much about the status given to the computer and, by extension, to its owners or users. For example, visiting the Sharma family several times allowed me to gather some information about the organisation of space around the home computer. One of the most striking changes that had occurred to the furniture layout between the first and the second interview was the change of place of the computer, from the living room to the daughters' room. I mentioned it to Bernard who explained that the move had been done mainly for practical reasons.

LH: So the computer has changed place since the last time I came here?

> Bernard: Yes, it was a bit cramped ... not enough room here [in the living room]. Not only that: it's easier for her [Maia] to work from there [the daughters' room]… to do her homework, which she now has to do.

This change of place seems to denote a change of status for the home computer. From being an item of display, the computer has evolved into becoming a much more functional object. Also, the move from a 'common' room to a bedroom, more 'private' area of the house contributes to making the computer a more 'personal' object, that begins to 'belong' more to Maia than to the rest of the family.

Another significance of this move may be found when studying the consequences it has had on the organisation of the children's everyday activities. In particular, Nicola feels that the amount of space used by the home computer prevents her from doing her drawing or painting comfortably and explains that she prefers being in the living room to perform such activities.

> LH: I see you have a big table here. What was there before you moved the computer?
>
> Maia: Nothing, just our school things.
>
> LH: Did you use to do your homework here?
>
> Maia: Yes. Well, we still do.
>
> Nicola: But now we can't sit together at the table.
>
> Maia: Yes, we can. Sometimes you play games and I sit here and do my homework. It's you who never want to sit at the table now.
>
> Nicola: There's more space there [in the living room]. When I do drawing or painting… I like to have a bit of space…
>
> LH: So, when you want to draw, you go into the living room?
>
> Nicola: Yes.

However, such activity is not always welcome in the living room, for example when the Sharma family is entertaining guests, in particular, a relative referred to as "Auntie Lydia", who appears to be bothered by the smell of Nicola's paint.

> LH: Do you do that often?
>
> Nicola: Quite often, yes…
>
> Maia: But not when we have guests around.
>
> Nicola: Only because of Auntie Lydia… She says it gives her a headache… the smell…
>
> LH: So what do you do when she's here?
>
> Nicola: Just watch telly…

We can see that the relocation of the home computer to the children's room has resulted in the displacement of Nicola's drawing and painting activities to the living room. As noted in Chapter Five, the living room is typically a 'shared space' within the family, which requires Nicola to make some compromises when her activities may interfere with the needs or demands of other family members or guests. In particular, when required to cease her painting she finds herself switching to other activities such as watching television.

The allocation of space around the two home computers of the Montenegro family provides another insight in the status held by computers in the home. Whereas Ernesto's computer is situated in the couple's bedroom and never moves from there, Mariela's laptop is in the kitchen and has to be packed up during meals. This could be due to a range of factors. First, Ernesto's computer is a desktop whereas Mariela's is a laptop, which makes it more 'movable' than Ernesto's computer is. Second, Mariela does not use the computer as often as her husband. She reports

using the computer “normally one hour a week. If I have an essay, then it’s like six-eight hours”, whereas Ernesto affirms using it “at least half an hour per day… sometimes three or four hours”. Finally, Ernesto’s computer is used not only for academic work but also for office work, home accounting and for Carlotta’s games and CD-ROMs.

However, we can also imagine that Mariela’s willingness to pack the computer away during meals reflects a less ‘emotional attachment’ to the computer. While Mariela’s computer is ‘present’ or visible when she uses it to perform a task, it becomes invisible when she has no immediate use for it. We can see that this invisibility of the computer affects and reflects its status within the home. In disappearing in the background after use, Mariela’s computer loses some if its status: it becomes more a tool than an object of display and holds a lesser place than Ernesto’s computer.

The allocation of space around the computer in the domestic sphere, just as with any other resource, creates tensions and conflicts. For example, although the Crabtree family appears as fairly harmonious, data from the interviews allow us to uncover some hidden conflicts. In particular, there seem to be some underlying tension about the use of space as far as the computer is concerned. This may be due to the particular circumstances of the couple: the computer appeared when Cassandra moved into what was initially Duncan’s house, therefore, Duncan’s space. It is almost inevitable that the moving in would have disrupted some of the space arrangements of Duncan. When Cassandra first talks about the location of the computer, she uses very neutral vocabulary: “on the desk”, “only paper”. However,

Duncan quickly voices his objection: “She took over the desk. It was my desk”, which, in turn, prompts Cassandra’s riposte: “Well, we’re married, we’re sharing” “When I moved in, there was such a mess there”.

In this section, we have found many indications that home computer use in the domestic sphere is tightly related to the notion of space as a resource. Installing the home computer in a shared space displaces objects (such as Duncan’s papers) or activities (such as Nicola’s drawing), thereby creating tensions and requiring a process of re-negotiation of the resource. Also, we have seen that the use of space around the computer an in particular the visibility of the computer to family members and visitors affects and reflects the status attributed to it.

***Budget***

The question of money and budget is always a difficult one to raise when conducting interviews. Some respondents were somewhat reticent to give details about their financial status whereas others seemed to have no problems sharing their concerns over financial matters with a stranger.

> LH: Do you have a special budget for the computer?
>
> Mariela Montenegro: No, no special budget. We have a general budget. We’re not poor or anything, but we have to be careful: I don’t go and buy lobsters or things like that…

Nevertheless, it was possible to identify a number of family budget-related issues such as concerns over the costs incurred by the computer and hopes regarding the potential of the home computer to generate money for the household.

*Concerns over money*

It is not surprising to see that concern about money spending is a critical issue in the Ahmed family, where no adult member of the family participates to the financing of the home computer. A relatively large part of Ehsan's modest income was dedicated to the purchase of the home computer and some software packages. The shift from "packages" to games seems to have originated in the realisation that games were cheaper to acquire and easier to exchange.

> Ehsan: And games are less expensive than packages: they pirated from friends. All the good games are about £30. Then, my brothers told me: you could get it for free. I said 'all right then'. They swapped games. You could do it through the local newspapers.

Other teenage family members interviewed for this research did show some concern for financial matters around the home computer but to a much lesser extent. However, children do use the argument of money when they believe it might help their cause. An example of this can be found in the discussion around the hypothetical purchase of a modem in the O'Leary family, when Jeremiah partly bases his argument on the financial soundness of an investment into a modem. First, he argues, the upfront expense is minimal.

> Jeremiah: […] it's getting cheaper and cheaper to get a decent modem...

Second, he compares the amount of money that his mother spends on the phone with her family in the Philippines with what it would cost her to exchange messages over e-mail.

> Jeremiah: […] it would be cheaper in the long run.

In emphasising the money-saving potential of computer technology to other members of the family, and its possible use as a tool for maintaining contact with the extended family, Jeremiah is perhaps also 'selling' the domestic aspects of such technology. As a device that facilitates interaction within the family while keeping the cost of it low, the modem would be a truly domestic object and would carve its place more easily in the home and in the life of the O'Leary family.

We have seen in Chapter Five that all the members of the Williams family are concerned about computer-related expenses, from the everyday costs such as electricity of telephone bills to the more 'major' expenses such as buying software or upgrading the computer. Jane's comments suggest that the main disagreement regarding the cost of the home computer does not reside in the day-to-day expenses associated with computer use but in the decision regarding the upgrade, or, more precisely the purchase of a new computer in order to install Windows 98. It is probable that, in Daffyd's mind, such purchase constitutes an investment for the future whereas it is a waste of money in Jane's eyes. Richard and Jane do not generally support Daffyd's ideas regarding the need to update the home computer. Richard in particular voices his opposition to the acquisition of extra features that he judges to be unnecessary.

> Daffyd: I would like to upgrade my computer to a faster one and Richard says "Why? It's fast enough". His view is that "You are not going to notice if it's faster if you just play Patience on it".
>
> [...]
>
> Jane: […] And Richard says: "what on earth do you want it faster for?" "What does it matter?"

The difference in opinion between Daffyd on one side and Jane and Richard on the other stems from the difference in status conferred to the computer and, more particularly, to activities enabled by the computer. In particular, the potential use of the home computer as a way to raise money is a subject of contention.

We then move to investigate the role that home computers play as elements of 'production'. In reviewing the literature on the family, we have seen that a number of theorists have argued that the family had evolved from being a unit of production to becoming more a place of consumption (Parsons, 1951, 1966; Wajcman, 1991). In the next section, we will see how 'production' activities are performed with the help of the home computer and how performing such activities may contribute to re-defining the meaning of the domestic sphere.

*Paid work from home*

Many of the interviewees either considered or started paid work from home, but this did not always involve the use of a computer. Some of the interviewees working from home did so because of the nature of their work. Others would have a 'regular' job outside the home but run or participate in the running of a business 'on the side' at home.

In the Crabtree family, the home computer is used primarily for Duncan's upholstery business, which is run from home. The home computer is used both to keep track of the accounting transactions and for the day-to-day correspondence related to the business. Tellingly, it is not Duncan but Cassandra who performs those tasks. This is probably due to the fact that Cassandra is much more computer-

literate than he is ("Cassandra is the computer expert. She's also good in the kitchen. I'm the maintenance man") and was originally the sole owner of the computer. When asked whether she would consider working from home, Cassandra shows some interest but explains that her lack of knowledge "about the scene" prevents her from investigating the matter further.

The Harrington's home contains three personal computers, one of which is exclusively dedicated to the family business. Gwendolyn Harrington is a head hunter who uses her home as a work base. She makes business-related telephone calls from a dedicated line and uses her home computer to send e-mails and type her reports. She does go out for interviews and meetings but the bulk of her work is done from home. She also helps her husband with the publishing business that he runs from home, with the help of a computer and a laser printer. Two elements of Dick Harrington's business are of particular interest to this research. The first item of interest concerns the involvement of the Harrington children into the day-to-day running of the business. First, the children seem to be very up-to-date with the developments of the business, as the following patch of conversation testifies.

> Gwendolyn: ... we have about... (she looks interrogatively at Oliver)
>
> Oliver: Three thousand.
>
> Gwendolyn: …three thousand subscribers.

Second, the Harrington children occasionally participate in the running of the business, in particular during 'rushed' period, such as the 'dispatching' period, when the workload suddenly increases substantially.

> LH: Are the children involved with the business at all?

> Gwendolyn: No, we may involve them if we want somebody... Like, not next week but the week after, we'll have three and a half thousand magazines in our sitting room. [...] you know, getting things out to the subscribers, we might ask them for help with that. We have a facility to take subscriptions through a credit card machine and Noreen will do that for me... They might help with... anything that's not too difficult.

Any work performed by the children in the family business is systematically rewarded with financial compensation "over and above pocket money", which motivates the children to volunteer whenever they feel the need for an extra income.

> LH: Do they like helping out?
>
> Gwendolyn: Not desperately, no.
>
> LH: They don't ask for it?
>
> Gwendolyn: If they're short of money, they'll volunteer.

The second item of interest regarding Harrington business resides in the status and work routines of non-family members who participate in the running of the business. Gwendolyn mentions two 'friends' who, in the same way as the children, 'help out' during rush periods.

> Gwendolyn: ... one of our friends from down the road... and another friend will be sitting here with labels, you know, getting things out to the subscribers

The business also employs on a full-time basis two persons who are not part of the Harrington family. They spend part of her workday at the Harrington's home but also perform some of their work at their own home.

> Oliver: She doesn't work at home?
>
> Gwendolyn: She does all her computer work at home and brings it in on disk.
>
> LH: What kind of computer work?

> Gwendolyn: They put all the new subscribers onto the database and then she brings in the disk, and then that's loaded up on the computer upstairs and then tonight, I will take all the hard copy subs that she's put in and check them, print out the labels...
>
> LH: So she comes every day?
>
> Gwendolyn: Yeah.

A statement of Gwendolyn's regarding the workspace allocated to those two employees reveals a certain blurring of boundaries between the world of work and the 'traditional' domestic sphere (as suggested in the literature, e.g. Ahrentzen, (1990), Hardill *et al.* (1997), Mirchandani (1998)).

> Gwendolyn: [...] their desk is the sitting room table.

We can see that the domestic sphere in the Harrington family is at least as much a 'work' space as a leisure or 'family' space. Indeed, work and family life are by no means separate concepts in the Harrington family: the children participate in the family business, not only as 'casual helpers' but also, to some extent, as stakeholders, taking interest in the workings and the developments of the business.

So far, we have discussed the cases of respondents who work only or primarily from home. This is, of course, not the case for all the families studied. However, we encountered several instances of complementary work carried from home with or without the home computer. In some instances, such work is directly linked with the work carried out outside the home. For example, Jane Williams uses the home computer to type up mathematics worksheets and examinations for her job as a secondary school teacher and to 'rehearse' her computer classes.

In other cases, the work performed at home is of a different nature from the work performed outside the home. For example, Bernard Sharma has a regular job outside the home (prison warder) but runs an import and export business from home with the help of the home computer (spreadsheet and word-processing packages, fax...), which provides the family with supplementary income. Other respondents mention having or having had plans regarding the set up of a small business involving the use of the home computer. For example, Ehsan, his brothers and one of their brother-in-laws were planning to set up a menu printing business, combining Tanim's drawing skills with their brother-in-law's contacts with restaurants. The project was abandoned before starting the implementation because the necessary investment in a PC and a laser printer were estimated to be too costly.

The Williams family is an interesting case because one of Daffyd's arguments for buying the computer was that it would help him carry out a number of jobs and the fact that this hope has not materialised causes Jane to become sceptical of Daffyd's further computer 'needs'. Indeed, in Daffyd's case, it is sometimes difficult to draw the line between work and personal interest: although he expects to be able to make money out of it at some point, his 'little project' seems to be little more than a hobby at the time of the interview.

This section has highlighted the dual role played by the home computer in family economics. On the one hand, the home computer is a source of considerable expense, not only when acquiring the initial equipment but also throughout the various phases of maintenance and update. On the other hand, the home computer is used to facilitate paid work from home whether this work is a full-time job (as in

the case of Gwendolyn and Dick Harrington) or a 'supplemental' job 'on the side' (as it is for Bernard Sharma or Ernesto Montenegro). The place of the home computer as an element of income as well as expense has been explored in the literature on teleworking, in particular in Haddon and Lewis (1994), and Haddon and Silverstone (1992, 1993).

## Section 4: Beyond the framework: emergent themes from the interviews

Throughout the analysis of family relationships around the home computer, a number of intertwined notions have emerged. In this section, we will first explore the twin themes of interest and knowledge and their role as a 'resource' throughout the process of use and appropriation of the home computer by families. We then examine the notion of status and its relation with the concept of identity. This leads to a consideration of the various symbols represented by the home computer, including the image of the world of work, the impersonal aspects of the computer and its status as a symbol of the future and progress. The place of the home computer as a part of the home technology landscape and as an object of consumption is also be explored. We finally consider the magical and mystical aspects of the computer as well as the legends that emerge and develop around the home computer and examine how those contributes to the domestication process of the home computer.

### *Knowledge, interest, identity and status*

In our analysis of the case studies, a number of new notions have emerged. In particular, we identified knowledge, interest, identity and status as prominent themes that were not present in the framework presented in the work up to Chapter Four. Those four notions can be seen as closely related with each other. In particular, we will see that knowledge and interest play an important role in the making of identity and status, both at a 'group' level and at an individual level. We will also see how knowledge and interest inter-relate while being two very separate notions. It is also important to recognise that those 'new' themes bear relation with the 'old' themes identified in the framework presented in Chapter Four. In particular, we can see that knowledge and, to a certain extent, interest too, are resources families value and readily tap into when they feel a need for it. We first present our analysis of interest and knowledge as resources, outlining how they inter-relate with other resources, then explore the related themes of identity and status.

#### *Interest and knowledge as resources*

Interest and knowledge emerge as two interdependent themes in the families studied. Throughout the studies, it becomes clear that both computer-related interest and knowledge play a largely overlooked but nevertheless crucial role as resources families use and tap into, not only when performing activities with the home computer, but also when shaping ideas and opinions around it. Although those resources are, to some extent, less tangible and therefore perhaps less visible

to the researcher than the originally identified resources of time, space and budget, they nevertheless deserve to be identified as an integral part of the overall analysis.

As could have been expected, interest and knowledge are tightly connected resources and therefore highly dependent on each other. A marked interest in computers or in computer activities often (but not always – as the case of Bernard Sharma illustrates) translates into a more intense or broader usage of the home computer, which may in turn contribute to increase knowledge about the workings and uses of computers. However, although the notions of knowledge and interest can be seen as parallel, we must keep in mind that those are two distinct notions and should be investigated as such. One of Jane Williams's comments regarding the difference in attitude between her son and her husband illustrates the need for such a distinction to be kept in mind when carrying out this research.

> Jane: But, with his job he [Richard] uses it [the computer] all the time and therefore he's good at it now. And he became fairly good at LSE because he took a computer course and he used it so much for his assignments. Sometimes, Daffyd can't do something for me with my mathematical symbols and Richard can.

It is also important to recognise that these two resources do not exist in isolation, but they pervade many areas of the 'computer experience' within the family. Not only do they play an important part in enabling computer-related activities, but they can also play a significant role in shaping family relationships around the home computer. In particular, the existence of differences or gaps in terms of computer-related knowledge or interest may engender tensions or conflictual situations within the family.

An interesting area is revealed in the study of the inter-relation of the notions of interest and knowledge with computer use and usage. This research suggests that both interest and knowledge are significant enablers of computer-related activities. Many examples of knowledge transfer or knowledge 'tapping' inside families may be found from the interviews. For example, Jane Williams uses her husband's computer knowledge for some work-related tasks such as looking for information on the Internet or solving a particular mathematical problem whereas Trini O'Leary relies on her son's help when using the computer ('I can use it to type but he [Jeremiah] has to help me').

The notion of knowledge (and lack of knowledge) provides some insights into the idea of 'computer-related' crises. Performing a particular activity on the home computer is sometimes deemed exceedingly difficult because of a lack of knowledge in that area. In particular, some of the stages in the home computer life cycle seem to be more prone to generate problems that require a particular kind of expertise, such as the 'setting up' and 'starting up' phases, the 'updating' phases or the various possible crises related to computer use. An example of a home-computer 'updating' process performed with the help of external knowledge may be found in the Crabtree family.

We do not pretend to establish here a comprehensive list of all the possible 'crisis situations' that a family may face when using a home computer. However, the empirical stage of the research does offer a number of telling examples: losing data (Daffyd Williams), getting stuck in a programme (Carita O'Leary), discovering a virus 'infection' (Cassandra Crabtree) may all cause inconvenience and concern to

a user who lacks expertise in solving such situations. Similar problems may also arise with computer-related technologies such as a printer or a modem (as is the case with Cassandra Crabtree).

However, there is evidence that such situations may be circumvented if help is available within or outside the family. Stories told relate how families or family members resort to tapping into knowledge or expertise lying among relatives or acquaintances. Therefore, we can see that we are in the presence of a different type of knowledge, namely knowledge about where the expertise in a particular area of computer use may lie.

It is interesting to see that 'official' alleys for getting expertise are rarely used or, when they are used, provoke disappointment and frustration.

> Richard: If there is a problem, he [my father] asks Dell. They're useless, though. It takes ages to get anything sorted out.

In many instances, alternate sources of expertise are sought and respondents are often keen to underline the contrast between the failure of the official experts and the dexterity of the unofficial trouble-shooters.

> LH: You had technical problems as well, didn't you?
>
> Richard: Oh yeah, that was with his sound-card. He bought a sound-card the Christmas before and he spent 9 or 10 hours on the phone with Dell sorting it out, because one of the installation disks wasn't running properly so it didn't work.
>
> [...]
>
> LH: Who do you ask when you have a problem?
>
> Daffyd: Me! It depends what kind of problem it is... If it's a software problem then I do it. If it's a hardware problem I usually phone up the help desk and I

must say they are not very helpful. The problem I had was with the sound-card. It wouldn't boot up with the sound-card. I phoned the help desk at Dell and they were just useless. So I called up this guy who told me I just had the jumpers in the wrong place. Quite simple really. Then it worked fine, no problem at all.

[...]

LH: Who did you ask if you had a problem?

Ehsan: My two brothers, between them two and Tamim's friends.

LH: Who are those friends?

Ehsan: There are two, mainly. One of them is the main expert, he has four computers, he's madly into it. He's doing the same course as Tamim in computer studies. They would sort out any problem. The computer didn't work once, I think we had some power supply problem, and they fixed it themselves. We didn't have to call a technician or anything.

Also, we can observe that Cassandra's reliance on Bennett for her home computer contrasts greatly with her lack of confidence in the maintenance team dedicated to the computer system at her workplace.

However, this faith in informal or unofficial source of knowledge is not unlimited. Gwendolyn Harrington, for example, is relatively comfortable with asking a friend to build a database within a standard software package but, when faced with the choice between buying a 'branded' computer or ordering one from a 'chap who makes computers', will choose the former option for 'safety' reasons.

Gwendolyn: [...] I could either have had a 'made' one or a 'branded' one. And I've chosen the branded one partly because the chap who makes the computer... his computers are not always 100% reliable. Sometimes the parts are a bit dodgy and he's not always there when you need to, so I though I'd rather have a computer that I could just call somebody up and say "This is the problem" and talk it through with them.

It may be noticed that the data does not provide many examples of trouble-shooting knowledge being found (or even sought) with the help of the home computer itself. Among the exceptions, we can refer to the case of Ernesto Montenegro, who declares preferring resorting to the help files rather than the manuals when he encounters trouble within an application.

LH: Do you have manuals?

Ernesto: Yes, but we don't read them. I prefer the help function…

However, evidence of the use of the computer to provide information aimed at solving computer-related problems remains rather scarce among the data. One could have imagined that some of the respondents (particularly the most eager computer users) would have tried to collect computer-related information on the Internet either from dedicated web sites such as software support knowledge bases or from discussions within a computer support 'virtual community', such as a user group. The fact that we do not find any instance of such transfer of computer knowledge via the Internet may be the result of a combination of factors. Among those factors, one may cite the fact that the families interviewed were often living through the early stages of home-computer use and had not yet encountered many problems or 'crises' around the home computer. One could suggest that families or individuals who have gone through a number of crises of the same type are more likely to have either developed a set of skills either in dealing with the crises or to have compiled a 'knowledge base' about where to find those skills.

So far, we have considered interest and knowledge as enablers of computer activity. However, merely considering knowledge or interest as exerting a one-way

influence on computer activities would be too restrictive a view. It must be acknowledged that performing an activity may also alter the shape of the performer's knowledge or interest. Computer usage may increase or refresh the user's knowledge, whether it consists of maintaining one's programming skills or improving one's dexterity at a particular computer game. Also, performing a task or activity on the home computer may either increase or reduce interest in that task or activity, or in the home computer. Ernesto Montenegro provides an example of knowledge (in this instance of a computer game) actually reducing the enthusiasm of his daughter Carlotta to play the game.

> Ernesto: She [Carlotta] plays games, but the problem is: she's very good at memorising the games. Once she knows what's going to happen, she gets bored.

The Williams family offers a vivid illustration of the need not only to distinguish between computer use and computer interest but also, as noted earlier, to avoid falling into the trap of amalgamating the two notions without further analysis. There is evidence of a stark difference in attitude towards the home computer between Jane and Daffyd. Jane is very keen to emphasise that neither she nor her son Richard feel or display any interest towards the home computer or computers in general.

> Jane: Richard won't have a go at just playing with the computer like Daffyd does. He'd much rather watch the television or play the bassoon. [...] But he hasn't got that real interest. Not for fun.

However, both Jane and Richard, despite this apparent lack of interest, use the home computer to perform a variety of tasks, ranging from work or academic

assignments to the setting up of a membership database for Jane's orchestra. In contrast, Daffyd, although he displays a profound interest in computers and in the home computer, does not seem to make as intensive a use of the computer as could have been expected.

> LH: What does he [your father] use the sound-card for?
>
> Richard: Hm… I'm not certain. He's able to now play music CDs on and since we don't have a stereo, that's one thing he uses it for. But also, just generally, general interest, he just wants a computer that's right bang up-to-date, that can do everything that you want it to do. It's just… I think it's just a bit of fun almost, it's a hobby. I'm mean, he's obviously… he's not a composer or anything like that. I think he enjoys seeing what it's capable of doing.

It would not be possible to fully grasp the significance of the twin notion of knowledge and interest as resources if we ignored its connection with the other resources identified in Chapters Two and Four. It is almost self-evident that the acquisition of computer knowledge requires a certain amount of monetary and time investment. The inter-relation between knowledge and the use of space within the domestic sphere is less obvious. However, one could suggest that an individual or a family that sets out to further or prioritise the acquisition of knowledge may want to orient the design of domestic space towards facilitating the access to and/or the sharing of computer knowledge. In contrasts, the inter-relation between interest and other resources such as time and budget is easier to identify and the empirical data presents a wealth of instances of such interconnection.

So far, we have explored the notions of knowledge and interest from the point of view of individual respondents. However, it must be remembered that, although studying individual behaviour and attitudes provides a substantial basis for further

analysis, it is merely a first step towards a broader exploration of computers in the domestic sphere. A wider account of family relationships necessarily involves an investigation of the similarities and differences between various family members as regards to both behaviours and attitudes. For example, when reflecting on the concepts of interest and knowledge, there is a need to highlight any differentiation (whether apparent or hidden) between family members. In some instances, those differences are categorised by the respondent themselves as gender differences (for example, in the O'Leary family).

It is also remarkable that the concept of knowledge and knowledge transfer is often mentioned in those cases where it is or is perceived to be non-existent. For example, Ernesto's narration of his daughter's ability to navigate around the computer is symptomatic of a case where a parent derives some pride from *not* having transferred any knowledge to his child:

> LH: And you, Carlotta where did you learn how to use the computer?
>
> Ernesto: I taught her how to log in and exit and the rest she does by herself.
>
> LH: Really?
>
> Ernesto: Oh yes, all by herself, just trial and error, you know.

Trini shows a similar admiration for her son's ability to acquire knowledge without 'needing to be taught'.

> LH: How about you Jeremiah, where did you learn how to use the computer?
>
> Jeremiah: I learnt from school, but basically… I just experiment… play around… see what the computer can do…
>
> Trini: He doesn't need to be taught. He reads the brochures and that's enough…

We can therefore see that knowledge and interest truly play a significant role as resources to families, and that their presence and absence are acutely felt, just as the presence or absence of other resources such as time, space and money. What differentiates knowledge and interest from other resources is that they are typically 'individual', and not shared as time and space (and, to some extent, budget) often are. This 'individual' character of the resources makes them all the more valuable in the domestic sphere, which is often represented and thought of as a place of sharing. This leads us to investigate the notions of status and identity, which, we believe, will be instrumental in shedding light on the consequences of such 'individuality' in the domestic sphere.

*Status and identity*

The two notions explored in the previous section, interest and knowledge, can be seen as related to the concepts of status and identity that this section investigates. The amount of computer knowledge of a family member, their enthusiasm towards the home computer, their readiness to get involved with its use or upgrade all participate to the construction of a status for that person within (and outside) the family.

In order to understand how the home computer may become a vehicle for the projection of one's identity, it is useful to first look at the notion of status. This can be understood from two different angles. First, it could be argued that the home computer itself is awarded a certain 'status' (or variety of statuses) in the home. Evidence of such status may be found, for example, when studying the way the

three resources of space, time and budget are allocated to computer purchase, use and update. Second, it can be observed that family members themselves may gain, maintain or lose status in the family in relation to the home computer.

This work explores the notion of status both in relation to the home computer itself and in association with its users (or non-users) within the family. However, we aim to go beyond the idea of two parallel notions of status and to bring them together under a common 'intellectual roof'. We can see that while families do tend to confer status to the home computer, the home computer also appears to bestow status to family members through a number of routes. Those two phenomena should not be seen as independent but as related and often intricately linked: attributing status to the home computer reveals a desire to share some of that status, and a family member enjoying 'computer-related' status is likely to pass on this status to the computer.

In this context, the notion of 'status' then acquires a double significance. On the one hand, the term 'status' may be understood as relating to the idea of 'affiliation'. In that sense, the quest for status may derive from a need to belong to a group and to be recognised as an integral part of this group. This group may be the family itself, a 'sub-section' of the family (for example the three brothers in the Ahmed family), or an entity totally separate from the family (for example an international network of computer amateurs). On the other hand, the idea of 'status' also embodies the notions of social distinction, reputation and prestige. It may be noted that those two different definitions of the notion status relate to two different approaches to the idea of computer use and ownership. The more 'moderate'

respondents tend to aspire to the status of 'member' of bigger group. As noted above, respondents such as Ehsan Ahmed and Trini O'Leary see the acquisition of a home computer as step towards 'being like everybody else'. The more 'passionate' respondents, however, display more signs of tying to achieve differentiation as well as or instead of mere affiliation. For example, Daffyd Williams aspires not only to catch up with but also to overtake his brother and brother-in-laws in the race towards 'updateness' and novelty.

A significant element of status may be found in the notion of computer ownership. Being the owner of a home computer may confer status both within and outside the family. In cases when status is derived from home computer ownership, elements such as brand, age, capacity of the hardware, 'up-to-dateness' of the software also play an important role. Ownership of a home computer is not only a source of status within the home but also and perhaps more importantly outside the home. In particular, home computer ownership seems to provide a certain amount of status within an extended family. One example of such a situation may be found in Daffyd Williams' eagerness at competing with his brother and brother-in-law.

Within the realm of the immediate family, however, the ownership of the home computer is often shared, which reduces the opportunities to create demarcations on the basis of ownership but opens the way to a whole range of other means for family members to establish criteria for status. Such demarcation may be obtained by performing a particular activity on the computer. For example, a computer-related activity may, in some circumstances, be a more visible activity and in some cases is automatically associated with the notion of work or study regardless of

what the computer user actually does. Another sign of status might be found in home computer 'sponsorship' (which involves promoting computer use in the home as well as bearing the cost). For example, Bernard Sharma seems to derive a certain status from his role as a sponsor of the home computer.

Finally, the achievement and display of computer knowledge can also be the source of status within and outside the household. The interviews reveal a number of instances where computer knowledge provides status. For example, Tarana Ahmed, although she expresses a wish to use the home computer for games, is not allowed to play as long as her brothers are. This may be due to a number of factors such as age and gender (see Chapter Five). However, there are also indications that her 'computer game competence' is lower than her brothers' and that this situation reduces her chances to gain access to the computer.

Another example of computer-related knowledge granting status may be found in the O'Leary family where the youngest member, Jeremiah, enjoys a considerable status within the family. There are indications that he is not alone in holding the belief that he is the family's 'computer expert'. Trini mentions that she knows little about computers and that she relies on Jeremiah to help her out. Her introductory comment illustrates this situation particularly well.

Trini: If you need to know about the computer, you'll have to ask Jeremiah.

His computer knowledge confers him some superiority towards his sister ("she keeps on asking me") and his mother ("I keep telling her to save, she always forgets to save"). His computer 'erudition' allows his opinion to weigh more than everyone

else in the family when the first decision was made about buying a home computer. His slightly anti-social behaviour when the family first acquired the home computer probably helped him build a distinctive image of himself as a knowledgeable and seriously involved computer user.

It may also be noted that Jeremiah's computer-related status goes well beyond the confines of the family. Jeremiah is part of a group of friends whose primary activities and interests seem to be centred around home computers, although they also "do other things" such as watching television and going out. He indicates that before acquiring his own home computer, he would go and use his friends' computers for his school assignments. Such assignments can now be carried out at home but he is still involved in helping his friends finding their way around the Internet when they need to gather information for their school assignments. Jeremiah's account of his computer activities at his friends' reveals a wish to demonstrate his expertise in terms of computer use and, in particular, Internet searches. One could suggest that his desire to acquire a modem is strongly linked to a wish to expand this expertise, and therefore, his social status within his group of friends.

The acquisition and use of a home computer in the Ahmed family are also closely related with the status that a home computer confers to its owners. The case of the Ahmed brothers offers a particularly interesting example of how the notions of status and identity tie in not only with other notion such as knowledge and expertise but also with the notion of community. Although the term status is never mentioned throughout the conversation, it is clear that owning a home computer opened the

door to a 'sub-culture' that is able to provide Ehsan, Nassif and Tamim with a strong sense of belonging. Tanim's computer interest and knowledge has not only allowed him to find a place in a 'computer community' but has also ensured access to this community for his brothers.

In this section, we have highlighted how knowledge and interest participate in the shaping of identity, and more importantly, identities within the family. We have also seen how status is attributed both to the computer itself and to family members who use it, sponsor it or have special knowledge about its workings. We have outlined how this status translates into feelings of affiliation as well as feelings of 'superiority'. The study of those four notions has profound implications for our understanding of the domestic. The 'individuality' of knowledge and interest as resources help us build a picture of the domestic not only as a place where unequal access to resources is the norm, but also where some resources are, by essence, more 'shareable' than others. While time, space and budget are more or less readily shareable (or at least, negotiable) within the domestic sphere, knowledge and, most of all, interest are typically resources that can only be transferred with difficulty, even (and, sometimes, particularly) if the 'owner' of the resource is keen to transmit it.

***Return to time***

We have seen earlier that the umbrella term of 'time' points towards a vast array of topics. We have seen how time, as a resource, brings about conflict and negotiation around its allocation. We now propose to consider the 'cyclical' or 'repeated'

aspects of time, as suggested in Chapter Four, following our analysis of Giddens's work (1984). This leads to an investigation and discussion around the themes of routine and crisis, as well as rituals and ceremonials. The discussion then moves on to touch on other aspects of 'cyclical' time, namely the 'life cycle' of the home computer in the domestic sphere.

*Routines, rituals, ceremonials and crises: an insight into the 'life cycle' of the home computer*

As discussed in Chapter Four, there is a need to conceive time not only as a linear resource but also as a cyclical one. The notion of routine or 'repeated time' is central to Giddens's (1984) argument that our lives are built around the intersection of two very distinct notions of time. Daily life, he argues, although it can be seen as having 'a duration' or 'a flow', is by essence repetitive. Although our lives "pass away in irreversible time" (page 35), the repetitiveness of day-to-day activities points towards the necessity to understand time not only as a finite and irreversible entity, but also as a constantly recurring and reproduced actuality.

The twin notions of routine and repeated or cyclical time bear much resonance when analysing the empirical data in this thesis. Most of the case studies described in this research display elements of routine, a very 'domestic' concept. To some extent, this trend was to be expected. One of the particularities of computer use is that it typically involves a number of tasks that are repeated over time (switching the machine on, dialling through the modem to obtain an Internet connection, running anti-virus software programmes, to quote only a few).

We can see from the interviews that much of the respondents' use of the computer is routinized to a greater or lesser extent. In some cases, the 'routinization process' is the result of work-related requirements. For example, Cassandra's use of the computer seems to revolve around the accounting requirements of Duncan's business.

> Cassandra. I do income sheets, quarterly sheets… […] It's mainly earnings and the hours of work. That I try to do every two weeks. […] When we do your [Duncan's] sheets, it takes half a day.
>
> LH: And how often is that?
>
> Cassandra: That's every three months.

An example of 'education-oriented' routinization of computer use can be found in the Montenegro family where both Ernesto and Mariela describe using the computer more intensively when the workload in their respective university courses is heavier.

> LH: How much time do you spend on the computer?
>
> Ernesto: It depends on the amount of work we have to do. I'd say at least half an hour per day… sometimes three or four hours.
>
> LH: How about you Mariela?
>
> Mariela: Normally one hour a week. If I have an essay, then it's like six-eight hours.

In the Williams family, we are in the presence of several 'cycles' of repeated time around the computer. Daffyd uses the computer once a day, whereas Jane averages half an hour every fortnight. In addition, once a year, the computer is moved from the study into the spare bedroom to make room for Jane's A-level marking.

Another routine has been established around the home computer in the Williams household:

> Richard: When we go away for more than a day, my Dad puts it in a loft because of burglary. We were burgled once: they were caught in the act trying to steal the 8086 without realising it wasn't worth anything.

This example is particularly interesting to us because it illustrates how a crisis (the burglary) participates in the establishment of a new routine (locking the computer before leaving the house).

Other examples of crises maybe found throughout the interviews. We can see, for example, that in the Crabtree family, computer activity comes to a standstill because Cassandra is not able to find a suitable toner cartridge ("I just gave up. I'm waiting for Bennett to come round and help me out with it"). Other crises or turning points may be precipitated by events taking place outside the home. For example, a resurgence of computer thefts at the university where Daffyd was taking his Masters degree prompted the authorities to close the computer rooms early, which in turn motivated Daffyd to buy a new home computer.

In an attempt to go further in our analysis of cyclical time, we wished to consider other notions associated with the notion of routine. In particular, the realisation that the media literature often uses the notions of 'ritual' or 'ceremonial' to refer to television viewing and other types of media 'consumption' (Becker, 1995; Chaney, 1983; Goethals, 1981; Rubin, 1984; Selberg, 1993) led us to consider the applicability of such notions to our study. The first step in trying to identify rituals or ceremonials within our case studies was to come up with a working definition of

this notion. In particular, we were concerned with finding what may differentiate rituals and ceremonials from each other and from other routine elements in family life. In everyday language, the word 'ritual' refers to an act or activity endowed with a special meaning or symbolism that may or may not be religious. In that sense, many routine elements of family life could potentially be considered rituals, from the running of an anti-virus programme when introducing a diskette into the computer (as in the case of the Williams family) to checking local news on the Internet every day. It is of course difficult to identify which activities have or do not have that 'special meaning' that gives them the status of ritual and it is not our goal to give a clear-cut and fast answer to this problem. Suffice is to say that whether or not an activity has a 'special meaning' is very much up to the interpretation of the interviewee and the researcher (which brings us back to the first-order and second-order concepts identified in Chapter Three).

The second notion we set to investigate was that of ceremonials. Although ceremonials certainly have ritualistic elements to them, they differ from rituals in that they do not merely punctuate everyday life but represent veritable 'milestones' within the cyclical process of domestic life, thereby participating in setting a pace to family life. They are perhaps more 'visible', less frequent but more significant than rituals. Possible ceremonials may be going to buy a computer, moving it from one room to another, or inviting neighbours over for a demonstration. One example of ceremonial may be found in the O'Leary case, where all the family members dedicated an afternoon to go to the shop and buy the home computer, as 'a family'.

These two new elements allow for a more in-depth investigation of cyclical time. Instead of the mere duality between routine and crises, we are in the presence of a continuum, or a progression, from 'mere' routine, to rituals, then ceremonials and finally crises. We would suggest that, although rituals and ceremonials have routine elements to them, they nevertheless stand out because they are endowed with this 'special meaning'. Similarly, although ceremonials certainly represent a turning point in the lives of families, which may give a slight 'crisis feel' to them, they typically result from a conscious decision of the family to make a change whereas crises typically originate from outside or uncontrollable elements such as a breakdown.

So far, we have explored the rituals and ceremonials that occur 'directly' around the home computer. However, an analysis of the interviews revealed that home computer use is very much related to other family rituals and may cause breaches into those rituals, which are intensely experienced and vividly remembered often long after they have occurred. The empirical data show the existence of a number of conflicts that could be traced to a breach in a particular family ritual. We choose to develop two examples of such conflicts in this section. The first ritual disrupted by home computer use, as described by Ehsan Ahmed, involves both family traditions and religious duty, which participate in making this incident a real crisis in the life of the Ahmed family. The second conflict is of a more secular sort, but involves a similarly important foundation element of family life, namely the gathering of the family around the dinner table.

Some of the families interviewed for this research seemed to be more attached to religious beliefs and rituals than others. This could be apparent from the conversation but also from the observations of the home environment (such as wall decorations). It would be presumptuous to assume that a family's religious affiliation necessarily comes forth in patterns of computer use. However, I identified two instances where the home computer seemed to play a role in the religious routines of the family. This role differs greatly between the two cases. In the Williams family, it acts as a facilitator for the religious family activity (see Chapter Five) whereas in the Ahmed family, the computer acts as a hurdle against the family religious routine. This second case is most interesting to us because it involves a breach of ritual and has very dramatic consequences.

In the Ahmed family, the use of the home computer for games clashes directly with the established routine of going to pray three times a day. One of Ehsan's brothers, Tamim, became so absorbed in computer games that he sometimes refused to accompany his brothers and father to the Mosque. Such incidents prompted a change in Mrs Ahmed's generally "more lenient" attitude towards the home computer, which she threatened to "chuck out of the window". Mrs Ahmed's reaction, together with Ehsan's own recognition that the home computer was "taking over [their] lives", in turn drove Ehsan to take the radical decision of locking the home computer away and not allow it back "into their lives" at any point afterwards.

The O'Leary family offers a second example of family conflict originating in the breach of a ritual. Trini's comments regarding her son's initial engrossment with

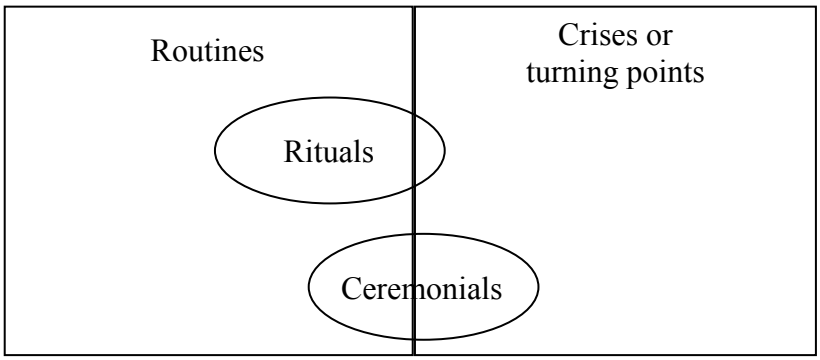
the home computer are particularly revealing of the importance given to the family dinner. She provides an extensive description of Jeremiah's behaviour, including his retirement within the home (and presumably a certain part of the home) and his absorption into computer games to the point of failing to hear his mother's calls for dinner. Trini's exasperation seems to be exacerbated by the belief that Jeremiah's concentration was partly feigned, which uncovers him as guilty of trying to avoid a family event.

This section has suggested how rituals and ceremonials around the home computer find their place alongside other rituals and ceremonials in the domestic sphere and how they are used as a way to integrate the home computer into the domestic sphere. We would suggest, for example, that when Daffyd institutes the 'virus check' routine or ritual, he does so as a preventive measure against an eventuality that could threaten not only the integrity of the computer but also, and perhaps more importantly, its status and acceptability within the home. Conversely, we have seen how clashes in family rituals and ceremonials, whether those are of a religious or secular character, contribute to establish the home computer as an undomestic and therefore undesirable object.

We have identified four 'levels' of 'cyclicality' around the home computer, namely routines, rituals, ceremonials and crises. We have identified routines and rituals as actions that take place on a more or less regular basis, mostly following the 'natural' cycles of family life (days, weeks, seasons, holidays, etc.). The other two 'levels' of 'cyclicality', ceremonials and crises, do not typically follow any of the 'natural' cycles but punctuate another, distinct cycle of family life, the life cycle of

the home computer itself. Figure 6.1 shows how Giddens's concepts of routine and crisis may be expanded to include the notions of ritual and ceremonial.


Giddens's (1984) initial concepts




Incorporating the notions of ritual and ceremonial within Giddens's framework

Figure 6.1: Incorporating the notions of ritual and ceremonial within Giddens's (1984) framework of routines and crises

The computer can be seen as having a life of its own within the domestic sphere, starting with the introduction into the home and ending with the disposal of all the elements that compose it. As mentioned above, the moment of the introduction into the home can be typically seen as ceremonial and the disposal may be identified as a crisis. A number of other 'turning points' in the 'life cycle' of the computer, including upgrades, extensions, breakdowns and major maintenance work, may also come across as more or less significant to families.

The notion of ‘life cycle’ has been discussed at length throughout the information systems literature. However, such literature covers mostly the cycle of development of information systems and has little relevance to our research, which focuses on everyday usage of a ‘finished product’ (at least from a design and development point of view). Another stream of literature is concerned with the notion of life cycle of computers and other domestic objects. For example, Haddon and Silverstone (1994), using Kopytoff’s (1986) conception of things or objects as having a ‘life’ and going through recognisable ‘ages’ that can be retraced in a ‘biography’, argue that ICTs can also be understood as having a ‘life’, a ‘career’ in the home.

A number of findings from this study support this idea that home computers are constantly evolving objects, playing an ever-changing role within the domestic sphere. They are moved from one room to another, pieces of hardware or software are added or removed from them, their status in the home, the meanings ascribed to them may shift more or less rapidly and more or less dramatically. We examine here the case studies in the light of the notion of ‘career’ and ‘life cycle’ as described above (Haddon and Silverstone, 1994; Silverstone and Haddon, 1996; Kopytoff, 1986), then critically evaluate this model in the light of the findings.

*The first 'turning point' in the life cycle of the home computer: the process of acquisition*

In this section, we focus more particularly on the first 'turning point' in the life cycle of the home computer, namely the process of acquisition of the initial hardware. We explore both the process of decision-making in the family before the acquisition of the home computer and the act of purchase itself. We see that, although it appears to be quite straightforward superficially, the process of acquiring a home computer is complex and that the process of 'appropriation' or 'domestication' is even more complex and multi-faceted.

Several respondents, among whom figure Daffyd Williams, Bernard Sharma, Ehsan Ahmed and Trini O'Leary, mention that their primary motivation for buying a home computer was to provide younger members of the family with the necessary awareness to computer technology and with the necessary tools to pursue a successful education. But a further analysis uncovers that other elements also enter in the decision to acquire a home computer. Curiosity and interest in an innovative technology certainly played an important role in the case of Daffyd Williams and Dick Harrington.

> Gwendolyn: Way back then, we bought the Sinclair because it was new and Dick was interested and he plugged it onto the black and white telly and wrote his little programmes [...]

In many of the interviewed families, there is also evidence that owning a home computer was regarded as a way to be 'like everyone else'.

> Trini: … all his [Jeremiah's] friends have one.

> Ehsan: Everyone was buying either this one or an Amiga, friends of my brothers, and my friends as well.

Indeed a home computer is often regarded as a 'normal' part of everyday life.

> Cassandra: I didn't think of doing something in particular. It's part of every day life.

However, identifying reasons and motivations is not a straightforward exercise. As with many other areas of family life, intentions and meanings are often difficult to elicit and we encountered cases where the same situation gave rive to multiple and sometimes contradictory interpretations. The Williams family offers a colourful illustration of this, as the three members of the family each attribute a different intention to Daffyd's decision to buy a home computer. When asked what the computer was bought for in the first place, Daffyd answers immediately: "Richard, it was for Richard", only to be contradicted by Jane: "No, that's his excuse. He bought the computer because he wants to play with it". During the second interview, she expands on that idea.

> Jane: Daffyd said he had the first computer because Richard needed a computer. Richard played a few computer games on it and that was it. At school Richard did the minimum of computing. And then we had the second computer Daffyd used the same excuse: "well, Richard needs it for his work". And Richard has used it a lot but I would think he wouldn't have really needed it, he could have used the college ones couldn't he? - which he most of the time did because he was down there.

Richard, however, believes that the Masters his father was doing put some pressure in him to acquire his own computer.

> Richard: And they used to shut the computer rooms very early at the School so he decided he needed a proper computer.

After studying the motivations behind the acquisition of a home computer, we moved on to explore the process of buying or acquiring a home computer. In our case studies, we found that the first acquisition of a home computer was often the result of a concourse of circumstances, or a decision taken 'on the spur of the moment'. An example of such serendipity may be found in Cassandra Crabtree's account of the purchase of her computer.

> Cassandra: When I was made redundant I got a lot of money. [My company] closed down the office. That's how I got the computer.

Ernesto's home computer was also bought because he 'had the money'.

> Ernesto: But the computer was over budget: I bought it because I had the money.

The decision to purchase a home computer seems to have been more planned and organised in the O'Leary family, where all the members of the household participated.

> LH: Who was consulted when buying the computer?
>
> Trini: We all went to the shop, the four of us, but he [Jeremiah] had to choose it, because… well, he needs it for school.

However, it may be hypothesised that Jeremiah's needs are not the only reason for making him the primary decision-maker. It is presumable that the granting of such a role also results from the discrepancy between his computer-related knowledge and his parents' relative lack of computer skills. Another example of such a discrepancy can be found in the Ahmed family. It is clear that the home computer in the Ahmed family would not have been purchased without the financial

contribution of Ehsan. However, he admits, he had relatively little say in the choice of the hardware because his knowledge did not measure to that of his brothers.

> LH: Who was consulted when it came to buying hardware and software?
>
> Ehsan: Me, because I was the one who was paying for it, but my two brothers told me what to buy because they knew more.

*Shifts and evolution in patterns of computer use over time*

Our next step in the analysis of the home computer 'life cycle' is to study the actual use of the technology, identify changes over time and compare actual use with intended use. As could have been expected, many respondents reported a noticeable shift between intended use and actual use and between early use and further use. In particular, both Richard Williams and Ehsan Ahmed report a shift from 'serious' activities to more 'leisure-oriented' activities over time.

> Richard: Now he [my father] uses it a lot more for leisure than he thought, like messing around with his sound-cards, and playing games.

> LH: What did you have in mind when you bought it? Did you think you would use it for games or for educational purposes?
>
> Ehsan: What we had in mind? Both: games *and* education.
>
> LH: And then, what happened?
>
> Ehsan: Educationally, it was in no way used the way I thought initially, and there was too much game playing.
>
> LH: How much was that?
>
> Ehsan: At the end, I'd say 90%.

In particular, Ehsan describes a pattern of 'specialisation' over time. At the beginning, he relates, the home computer was used for 'all sorts of things', including playing around with packages. However, the limited appeal of software

packages, combined with the realisation that computer games are on average substantially cheaper than packages, led to a significant increase in the amount of game playing while most of the other computer-related activities were dismissed or abandoned.

> Ehsan: When they [my brothers] started they would use it for lots of different things as well as for games.
>
> LH: What sort of things?
>
> Ehsan: Oh, well, packages, and things. Then, once they got bored of the packages, they only used it for games. And games are less expensive than packages.

This process of 'specialisation' has been described in several instances as an intrinsic part of the 'career' or 'life cycle' of the computer in the home. For example, Steinfield *et al.* (1989) propose that the range of applications used on a home computer narrows down as users discover applications that meet their specialised needs. They suggest that, as the home computer becomes more integrated within the home, patterns of use are likely to shift from II to III rather than IV (see table 6.1).

| | | Amount of time | |
|---|---|---|---|
| | | Light and Irregular | Heavy and Regular |
| Diversity of Use | Low | I<br><br>Brief, sporadic use of a limited variety of applications (e.g., executive sporadically checking mail from home, weekend game players) | III<br><br>Heavy, regular use of a limited variety of applications (e.g., writer using a personal computer for word processing, compulsive game player, hackers) |
| | High | II<br><br>Brief, sporadic use of a wide variety of applications (e.g., early users of a new system, people seeking to become computer literate) | IV<br><br>Heavy, regular use of a wide variety of applications (e.g., computer consultants, officers of computer user groups) |

Table 6.1: "Hypothetical Patterns of Personal Computing", in Steinfield *et al.* (1989, page 69)

However, in other cases, we find that the activities around the computer become more varied as time goes by. In Cassandra's case, we can see that not only the range of her computer activities has extended over time ("I didn't think I would use it for Duncan's business") but also that her way of organising her schedule has significantly been shaped by her computer activities. For example, she uses a personal organiser software on the home computer "all the time" whereas she had never used a diary before ("It's probably the first time I'm using a diary").

More generally, we can see that the life cycle of the home computer is often dependent on external events such as obtaining or losing a job, or more domestic matters such as the comings and goings of spouses and children. A humorous exchange between Duncan and Cassandra Crabtree illustrates this idea.

> Duncan: I used to have another one, an Amstrad. We mainly used it for word-processing. The Amstrad left when my partner left.
>
> Cassandra: Is that why you married me? You needed a new computer, is that it?

Ernesto's computer had to be returned to the company when he left his job.

> Ernesto: Our first computer… it was a laptop. I got it from work. But we had to replace it because it belonged to the company. That was two years ago. Then I bought this one.

More generally, we see a significant amount of change taking place with and around home computers in most of the case studies. An investigation of the situations in terms of 'career', 'life cycle' or 'biography' bears much relevance to our research. The studies also suggest that the notion of 'life cycle' (or 'career' or 'biography') should not be restricted to the mere concept of 'presence' of the computer in the home. It might be tempting to see the life of the home computer as beginning with its physical entry into the home and ending with its disposal or relegation to a closet or an attic. However, we have seen that the home computer is very much 'alive' and 'present' in the minds and conversations of families before and during the process of acquisition as well as after being abandoned or disposed of.

In this section, we have investigated issues raised by an understanding of time not only as a linear but also as a cyclical entity. We have proposed a way to integrate the notions of ritual and ceremonial within our understanding of cyclical time, and have linked those ideas with the notions of 'life cycle', 'career' or 'biography'. We have used those notions to investigate the process of acquisition of the initial

hardware equipment as well as the evolution in patterns of use over time. This allows us to critically appraise theories of specialisation through the process of routinization. This has also helped us understand that the 'life' of the home computer does not necessarily equate its physical presence in the home. A home computer has a certain significance, a number of meanings to families and family members well before it is bought and well after it is disposed of. From here, we move on to investigate the various symbols and meanings that families attribute to the complex notion of time in relation with the home computer.

***Symbolic aspects: the computer as novelty, progress and youth***

The idea that technologies are acquired and used as a symbol of scientific and technological progress is a recurrent theme in the literature (Forty, 1986; Keen, 1987; Haddon, 1988). In this section, we consider the place of the home computer as an object of novelty, and a symbol of 'the new'. We see how owning, using or promoting the computer in the home participates in building or reinforcing a person's image as 'ahead of one's time'. We also see how the computer may embody a certain idea of the future that may be seen as ideal to some family members.

Throughout the interviews, we found that the notion of novelty to be an important element of home computer use, in particular among teenagers. For example, it appears that Jeremiah and his friends value particularly any aspect of 'novelty' whenever engaging in a computer-related activity.

LH: Do you ever use their [your friends'] home computer?

> Jeremiah: [...] If they have a *new* game or something, I might…
>
> [...]
>
> LH: And do they use your computer when they come round?
>
> Jeremiah: A bit… when I have something *new*… We play around with it a bit.
>
> [Emphases added]

Gwendolyn's description of Oliver's consumerist behaviour outlines his predilection for 'the new'.

> Gwendolyn: […] he always wants the next, you know, he's bought a hockey stick last term and now he wants a new one, a better one.

But the desire for 'the new' is not solely a teenage phenomenon. Richard Williams describes the acquisition of a home computer as the realisation of one of his father's "being up-to-date dreams" and Gwendolyn Harrington recalls that the first computer was bought "because it was new".

Of course, we must not forget that our study is situated in time and place, at a moment when home computer ownership was still a relatively new phenomenon. At the time of the interviews, the home computer itself was still a symbol of novelty. One could imagine that the home computer would lose this status over time as more and more households acquire home computers. However, one can suggest that other elements, such as the owning a modem, a soundcard, a graphics card, a DVD player, a bigger or flatter screen, cordless keyboard or mouse, or a speedier processor, may all contribute to making a home computer 'new' in the eyes of its owner. In other words, the object itself may lose some of its status as symbol of novelty but upgrades, add-ons and peripherals would be given more importance in the 'race towards the new'.

In addition to its status as symbol of 'the new', the home computer can also be seen as holding a particular status as symbol of future and progress. In acquiring, using or promoting the home computer in the home, one would therefore reveal or demonstrate one's faith in progress, in a certain type of future that one sees as ideal. We have already observed how Bernard Sharma imbues the home computer with a capacity to endow his daughters with specialised knowledge that will facilitate their access to higher education, will equip them to find interesting and high-status jobs, and, more generally, will provide them with a steadfast foothold into the future.

Although the intensity of such a feeling is particular to Bernard's case, concern about computer-related education is widespread among all interviewed parents. In particular, many parents comment about the availability and quality of computers at their children's school and consider the lack of suitable equipment at school a major motive to acquire a home computer.

> Ernesto: We feel it's important she learns about computers. You see, there are no computers at Carlotta's school.

Duncan and Cassandra see the lack of updated computers at Hilda's school as a mark of the school's disinterest in building an adequately solid basis in computer knowledge. In addition, Duncan seems dissatisfied that the limited computer time that Hilda and her classmates get is spent 'playing'.

> Duncan: She's got computer time at school, about fifteen minutes a day. It's play. Most children get that from home anyway.

As mentioned above, the home computer embodies a certain type of faith into the future. In particular, it is seen as a means to achieve a certain type of 'future ideal',

often making up for the lack of 'vision' of other institutions of society, such as the school system.

Another symbol of the home computer may be found in its association with youth or youthfulness. We would suggest that this association is deeply rooted in the belief that computer skills and awareness are the prerogative of youth. In particular, the belief that computers follow a certain logic and that comprehension of such logic can only be acquired at a very young age participates to building an image of the computer as an 'object of the young'. Indications that age may shape involvement and attitude to computers (in and outside the home) can be found in works such as Rosen and Weil (1995a), Dyck and Smyther (1994), Dyck *et al.* (1998), Shermis and Lombard (1998), and Laguna and Babcock (1997). Such research mainly focuses on finding a correlation between age and computer anxiety on 'computerphobia', and mirrors some of the more general research on 'technophobia' (Rosen and Weil, 1995b).

Throughout the interviews, we can see that the belief that computers are best used and more quickly understood by younger generations is widely present among respondents, both from the 'older' and the 'younger' generation.

> Richard: It's a big step. Even myself, I don't think first… when I want to find something, or know about something, I don't think the Internet. [...] So obviously if somebody is 30 years older than me it would be even a bigger jump. It just a mind set.

In particular, there seems to be a belief that being comfortable with computer requires a certain flexibility or adaptability that adults do not have.

> Ernesto: [...] she [Carlotta] is very at ease with it [the computer]. She learns very quickly. Well, children learn quickly, don't they? Not like us adults, it takes us ages.
>
> [...]
>
> Jane: I'm not quick enough at it yet
>
> LH: But do you think you will be at some point?
>
> Jane: Probably not at my age
>
> [...]
>
> Trini: I mean, it's OK when you're young but... It's tough at our age... We're not used to it.

This section has explored how the computer may be viewed and experienced as a symbol of novelty and progress. Such insight can further our understanding of how the home computer comes to be understood and conceived of either as a domestic or as an undomestic object. For individuals such as Bernard Sharma, ensuring the academic and professional future of his daughter is a central element of his 'family project' and could certainly be understood as a very 'domestic' duty that he has set for himself. For others, for whom novelty and future are more threatening than comforting, the futuristic aspects of the computer contribute to making it foreign, alienating and hence undomestic or undomesticable. We can see that the novel and futuristic images and symbolism of the home computer do not in themselves make it either domestic or undomestic. The domestic sphere must be understood as both a means to meet the future, for example through processes of education and socialisation, and also as a bulwark against the wild and unknown beyond its boundaries. So we see that there is a need to comprehend how such images and symbols are perceived and used by individual members of the family in order to

achieve a clearer picture of the place attributed to the computer in the domestic sphere. From this perspective, we can see that the process of appropriation of computer technology (or, conversely, the process of rejection of that technology) is substantially dependent on individual values and outlook on the perceived positive or negative outcome of technological change and a technologically imbued future.

We next move on to explore another aspect of the domestication process, the creation and 'perpetuation' of family stories and legends around the home computer.

***Family stories and histories: building legends around the computer***

Every family shares a common past and stories of the past typically make up a significant part of a family's common ground. In families, just as in every other human group where knowledge is transmitted orally, it is often difficult to differentiate between story, tale and legend. It is therefore not surprising that some of the 'stories' related throughout this study have a certain 'tale' or 'legend' ring to them. The forming of a legend is particularly manifest when I had the chance to hear a same story twice during two different interviews. Two of the 'shifts' in story line reported in Chapter Five are worth re-telling here. The first shift concerns the amount of time Daffyd reports having spent on writing a particular programme: from "a couple of hours" during a first interview, the amount shifts to "ten minutes" in the second interview. The second 'tale' concerns the computer equipment at Hilda Crabtree's school: what appeared to Duncan to be "ten-twelve years old" during a first interview becomes "fifteen or twenty years old" less than a year later.

Other elements related to computer use or to computer knowledge seem to have entered the realm of family legend. The most prominent of such examples might be Daffyd's computer knowledge and dexterity at programming, which, throughout the accounts of his wife and son, appear nothing less than *legendary*. What is special about Daffyd's computer knowledge - and contributes to make it legendary - is that it originates from a time when computers were more a rarity than the norm and making them work demanded a set of very specialised skills.

> Richard: ... when he did the majority of his computing, if you wanted the computer to do something you had to programme it.

The family legend that depicts Daffyd as a 'product' of the early days of computing has very powerful implications regarding the identity of Daffyd. It presents Daffyd as a member of the 'selected few' that had access to computers and to knowledge about them, thereby re-affirming his role as a 'computer wizard' within and outside the family. Recognising the importance of such a deeply anchored family legend might help us understand why it is now so important for Daffyd to keep his computer skills 'fresh' and up-to-date. It is probably crucial for him to 'live up to the legend' that he has forged over the years within and probably outside the family.

We have seen earlier that the home computer is often represented as a symbol of 'the future'. We can also see here how it is used as a link between the past and the present (and *a fortiori*, the future). It allows Daffyd to 'transcend' time, 'go back in time', revisit old times that are perceived as better, more special and possibly 'safer' than present times. This provides us with a further insight into the process of

domestication of the home computer. In providing a bridge between the past, present and future, family tales and legends can also be seen as bridging between the known and the unknown, the familiar and the unfamiliar, the domestic and the undomestic.

In this section, we have outlined a number of symbols that may be associated with the notion of time with regards to the home computer. In particular, we have seen that the home computer may conjure up symbols of novelty, future and progress as well as youth and youthfulness. We have also seen that the home computer may be used and thought of not only as a symbol of the future, but also as bridge between the past and the present or the future, thereby facilitating the process of domestication of computer technology.

## Section 5: Bringing the themes together: domesticity, undomesticity, and domestication

Throughout the analysis of the interviews, a number of themes related to the notions of domesticity and domestication have emerged. In this section, we explore in more depth the processes of integration of the home computer into the domestic sphere. We start this section with an investigation of the way families build an image of the computer as a domestic object. In particular, we examine how they conceive of the home computer as part of a broader ensemble of domestic objects, whether this ensemble is the 'media ensemble', the 'technology ensemble' or more broadly, the 'consumer good ensemble'. We then move on to examine some of the characteristics that contribute to make the home computer undomestic. We will

start with the observation that computers originate from the world of work and are still often perceived as embodying the impersonality, the hostility and sometimes the malevolence of the 'outside', corporate, undomestic world.

***Conceiving of the computer as part of a domestic ensemble***

In several instances, the home computer is seen as a representative element of a broader range of goods or objects that are themselves charged with symbolic properties. For example, it appears from the interviews that the home computer is sometimes seen as a part of the 'media ensemble'.

> Duncan: Well, coming back to your computer thing, I must say I'm amazed to see what happens with computers and television and...
>
> [...]
>
> LH: Do your parents try to control your computer usage?
>
> Ehsan: They didn't check on us but they weren't happy at all with it. You can imagine, my father was already unhappy having a TV at home.

In some instances, the home computer is also seen as a mere "piece of electronics" that belongs to the world of gadgets and other frivolous objects or appliances. Jane Williams explains her lack of interest for computers in a very telling way.

> Jane: I don't like playing with gadgets basically.

Ehsan Ahmed's descriptions of his brother Nassif's 'technophile' attitudes also suggest that the home computer is, in his opinion, somewhat akin to the video recorder or other electronic goods.

> Ehsan: if you took it [the home computer] away, he [Nassif] would have gone into something else like videos. He's into all electronic stuff. The computer is just the most fancy stuff.

We can therefore see that, as suggested in Moores (1993), Haddon and Silverstone (1993), Silverstone *et al.* (1992), and Silverstone and Hirsch (1992), the home computer is part of a whole 'domestic media ensemble.' In addition to being part of the 'media ensemble,' or the 'electronics ensemble', the home computer is also seen sometimes as part of the 'consumer goods' ensemble. For example, in many instances, the home computer is categorised as a consumer good, especially by those family members who do not attribute particularly positive qualities to it.

> Jane: he just wants one [a new home computer]. Like you'd like a better car or…

Gwendolyn Harrington portrays her son Oliver as "quite a consumer-orientated child" and describes his interest in computer games as part of a broader interest in consumer goods.

> Gwendolyn: [...] he's always known what he wanted in terms of electronic goods, you know, he's got a keyboard, he's a got a mini sound system, he's got the radio-cassette players, he's always able to identify what he wants, you know: "I think I need a new watch...". So he would look for new things and new ideas and want them.

When relating the family's past experiences with home computers, Gwendolyn provides us with an example of how computer and media technology interact within the home. She mentions that one of their early home computers required a television set, which resulted in the purchase of an additional television.

> Gwendolyn: [...] Dick started off with computers with the ZX - is it the ZX 81 or something? Way back with Sinclair, he bought one of their computers in 1981 and then he went onto Apricots, and then there were some computers bought out for children, which involved buying a television, I can't remember what it was, so Oliver wanted that [...].

We can therefore see that the home computer carves its place within the domestic sphere as part of an intricate web of symbols. For some, it is a piece of 'corporate' technology that is utterly foreign to the domestic world and therefore is something to be resisted, actively or passively. For others, it embodies the 'coldness' and impersonal aspects of technology and therefore clashes with the warmth of the domestic sphere. For yet others it is tightly integrated into the 'media ensemble', the 'electronics ensemble' or the 'consumer good ensemble' all of which occupy a specific place within the domestic sphere.

***The computer as an 'outsider': conjuring images of the world of work and of 'corporate culture'***

For some of our interviewees, the home computer is seen as a symbol of the world of work and conjures up images of 'corporate culture' invading the domestic space, which sometimes result in some family members avoiding it. We have seen, for example, that Teresa Sharma's experience with computers at work is one of the main motives of her silent resistance vis-à-vis the home computer. Other respondents also relate experiences related to computers at the workplace when asked about their home computer (Cassandra Crabtree, Trini O'Leary).

The home computer may also be seen as symbolising the 'cold' and impersonal aspects of technology. In particular, the computer is sometimes seen as an inferior mode of communication when compared with other communication tools such as the telephone. This argument is used by Trini O'Leary to counter her son's wish to acquire a modem.

> Trini O'Leary: [...] it [e-mail]'s not the same. When you hear someone's voice it's more...more... well it's just nicer isn't it?

Jane Williams holds a similar opinion, based on her observations of her son's experience with the use of e-mail as the main means of communication with his girlfriend. She contrasts the appropriateness of e-mail in particular situations such as "a quick message" with the unsuitability of such a medium for more private or intimate types of communication.

> Jane Williams: You can't really say much on e-mail. For example, Richard and Barbra e-mailed each other for a little while and they seemed to only say things that caused upset for the two of them. And now the never do, ever… as far as I know… I haven't seen any e-mail from Barbra for a long time. He does e-mail all his other friends but not Barbra. It's a bit impersonal isn't it? I think it's good for a quick message.

A superficial look at the cold, impersonal, corporate aspects of the computer could, at first sight, give the impression that it is a doubtful candidate to the process of domestication. And yet, it appears to be used, included, and eventually accepted and integrated into the domestic sphere, often by those very persons that are most ready to stress its weaknesses and inadequacies. Jane and Richard Williams, Cassandra Crabtree, and, to some extent, Mariela Montenegro and Gwendolyn Harrington are all very aware of the alien character of the home computer but they all use it, accept it and incorporate it into their routines and habits. As mentioned earlier, we do not see any contradiction here. On the contrary, we would suggest that, for some respondents, it is precisely this awareness of the home computer's weaknesses and 'unpredictabilities' that makes it eventually acceptable, understandable, and 'domesticable'.

### *Ascribing magical properties of the computer*

Throughout the studies and throughout the analysis in this chapter so far, we have found that respondents tend to attribute various qualities or properties to the home computer. This section explores those themes with the use of the interconnected notions of power and magic. Those notions are themselves tightly related to the notion of symbol developed earlier and many of the themes touched upon earlier will reappear in this section.

This research has revealed the existence of a variety of beliefs regarding the role or the intrinsic qualities of the computer, ranging from the transformative properties of computers to the threat they may pose to their users, their immediate environment or even society as a whole. Those beliefs may be interpreted in a number of ways but a close look at the data suggests that the sense of magic is an essential component of family experiences around the home computer. In many instances, families and family members confer a mystical dimension to the computer and to computer use. A computer is without doubt an intriguing object. It can perform a wide variety of tasks but does so with a very particular and sometimes baffling logic. It appears robust and powerful but is vulnerable to the effects of outside elements such as water or dust or the equally mysterious effects of viruses. All those elements contribute to increasing the computer's opacity and may reinforce beliefs in its mysterious and mystical properties. It is interesting to note that such beliefs may translate either into excitement and enthusiasm towards technology or into various degrees of negativity, ranging from scepticism to fear and avoidance.

Some of the respondents exhibit an evident belief or faith in the magical properties of the home computer and related equipment. The two most obvious examples are Jeremiah O'Leary, Bernard Sharma, and Daffyd Williams, each of whom has his own idealised interpretation of what the home computer can or will do. Jeremiah imagines that owning a modem will magically take care of his class work assignments:

> Jeremiah: A link leads to another, then to another, then… Before you know it, you've got your essay, I mean… all your information, you just download it and… that's it…it's all there… you just have to write it up.

It can be noted that Daffyd Williams uses a similar type of argument to describe his brother's use of a Bible programme when writing his sermons.

> LH: What does he [your brother] use the computer for?
>
> Daffyd: Writing his sermons on a Sunday. What does he have? He has Elijah, that's a bible-type programme, which gives you all the references and what they have on. He got that very early on. And he just simply puts in whatever he wants to talk about and that comes… many references that he can put together in Publisher. So he doesn't have to spend hours and hours writing his sermons. It's all there. I guess it prints it out for him. I think it's great.

The magical element of the home computer appears under a different shape in the Sharma family. Bernard expresses the desire not only to get in touch with the magic of the computer but also and most importantly to put those magical qualities at the service of his family. His efforts towards championing the use of the computer at home reveal his wish to capture and release its mysterious but (in his eyes) tremendous power. The miraculous outcomes of home computer ownership will translate into a matchless education and ultimately a secure academic and

professional future for his daughters, thereby guaranteeing them a total freedom regarding which path to choose in their future life.

It should be noted that the presence of such beliefs translates into the building of myths that can in turn be manipulated and exploited in order to fulfil a variety of goals. It could be suggested that the belief in a particular myth leads to the construction of a 'dominant reality' in a person's mind. It should also be recognised that this 'reality' may also become 'dominant' within a social group, such as the family. Jeremiah's attempts at convincing his family of the magical properties of a modem are but one example of such manipulation.

It may be noted, although this is a rather judgmental statement, that a number of the fears and anxieties that surround the home computer, although they are grounded in reality, may easily turn into irrational beliefs. The computer is often seen as able to incapacitate its users, to take control over their mind, to turn them into totally different persons. The power of the computer can easily be seen as a force of destruction, playing tricks on the mind of individual users, thereby bringing turmoil within the house, and ultimately the disintegration of the family as an institution. However, in this research, we found relatively few indications that the respondents were particularly concerned with the relationship between computers and the human brain, with one exception.

> Duncan: Whenever she has the opportunity. She goes to Robert's. We have a friend whose son is partially deaf. He always draws the same picture. He's been allowed to spend too much time on the computer if you ask me. [...] He can get very angry. He's in that world of his. He's not in touch with other people's feelings. That, I think, is the result of both the computer and the

> hearing problem. He's highly intelligent. His mother spends a lot of time with him. He's got a computer since he was 5. They've updated it 8-10 months ago. The father uses it for his business and his elder brother and sisters spend time with him.

Another fear concerning the quasi-magical powers of computers resides in the beliefs that they may possess or acquire human characteristics. The literature offers many interpretations of such a phenomenon. Seeing the computer as possessing human characteristics has been seen as an expression of one's affinity or even intimacy with the computer (Turkle, 1984) and such affinity has been presented as one of the dangers associated with spending too much time with the computer. It must be noticed, however, that such anxieties did not find a lot of resonance in the analysis of the case studies for this thesis: I only encountered one instance of anthropomorphisation of the computer throughout the interviews (Cassandra Crabtree refers to her computer as a companion, "a good friend").

Another common source of anxiety can be found in the belief in the destructive powers of the home computer or of computer technology. This type of anxiety becomes particularly visible when dealing with situations where there is a fear that computer viruses may 'contaminate' the home computer. Such anxiety translates differently among the various respondents. Cassandra explains that she would not bring a diskette home from work under any circumstances. We can therefore see that the threat posed by computer viruses causes Cassandra to avoid any transfer of data from work to her home, thereby reinforcing the boundary between an 'outside' that is vulnerable to virus attacks, and 'the domestic', where safety and prudence prevail.

Daffyd shares the same concerns as Cassandra regarding the destructive potential of computer viruses but implements a different solution, which consists of running his anti-virus software whenever a diskette enters the home. As we have seen in Chapter Five, Jane does not share the same anxieties regarding the dangers of computer viruses, or not to the same extent. In response to his wife's lack of concern, Daffyd has developed a special routine that he implements when she brings a diskette 'home from school'. Daffyd is also concerned with viruses propagating through the Internet. His strategy is therefore to avoid downloading anything from the Internet for fear a virus might be hidden behind a programme and released through the downloading process.

We can also identify other circumstances whereby the home computer is ascribed magical properties. In particular, some descriptions of the addictive aspects of computer use conjure up images that belong to the sphere of myths and legends. For example, in Ehsan's story of his family's dealings with the home computer, we can easily find some resemblance between the home computer and an overpowering creature such as a wild beast or dragon from a fairy tale. Ehsan's dramatic decision to lock the computer away evokes tales of slaying (or at least taming) the fierce monster.

***Concluding comments***

This thesis started as an investigation of the place of the computer in the family. Increasingly through this exploration, the status of the home computer as a domestic or undomestic object emerged as a significant element in the research.

This in turn leads us to another question - the notion of domestication itself and how the computer is implicated in such a process. Here, we pull together and summarise what (and how) we have learnt about the domestic, the undomestic and the domestication process through our research.

A significant contribution of this research is the understanding it allows of the notions of domestic and undomestic, and of the process of domestication. At the outset, it might be suggested that those three concepts are what was referred to in Chapter Three as second-order concepts (the researcher's construction of the respondents' constructions). Indeed, it is remarkable that respondents do not use any of those words at any point – although this was somewhat predictable, since the word 'domestic', and *a fortiori*, the words 'undomestic' and 'domestication' are rarely used in everyday conversation. We feel, however, that talking about the researcher's 'construction' in this context is perhaps slightly misleading. But although the words are not pronounced in the interviews, the concepts and the conceptions are undoubtedly there. Through many of the conversations, people are talking about the extent to which the computer is taken up and integrated into their domestic life and they talk as much about this aspect as they do about its functional position. More generally, we see a recurring theme of the acceptability of the computer within their home and as part of their family lives.

Identifying this concern with the domestic and domestication offers an opportunity to link or consolidate the diverse themes that had emerged from the analysis. In the spirit of a truly interpretive approach, we have let the situations studied express themselves. They emerged 'raw' from the data and, in the first stages of the

analysis, we did not attempt to refine them or to integrate them too closely either with each other or with the 'initial' themes from the literature. Instead, we have chosen to present them relatively separately and only drawn some loose connection between them. At this point we choose to re-work our insights and their inter-connection within a perspective that emphasises the domestic and the process of domestication.

As mentioned in Chapter Two, the notion of conflict is central to many theories of the family and to many research works into the workings and dynamics of families. Having developed an awareness of the importance of this theme, we have perhaps become more sensitive to indications of the existence of conflict or tension within the respondents' families. In particular, throughout our exploration of family interaction around the home computer, we have observed the existence of a certain amount of tension between those who conceive of computer technology as a foreign, intrusive addition to the home and those who embrace it as an intrinsically domestic object or one that is domesticable. We must also recognise that the notions of 'the domestic' and 'the undomestic' are fluid and somewhat ambiguous concepts. They seem to have very little (if any) connection to the purely physical or functional properties of the home computer. Instead, they are heavily connected to respondents' emotional response to the presence of a computer in a sphere that is unequivocally domestic.

In trying to uncover what might render the computer domestic or undomestic, we first referred to the ideas presented in Chapter One. We have seen that the expression 'domestic sphere' evoked images of the domestic as a sheltered and

feminine place of intimacy and care, a warm cocoon where the individuals take refuge from the hardness of the outside, unmerciful world. But we also realised that the notion of domestic goes beyond the realm of its narrow sense as 'domesticity'. People embrace computer technology as domestic not only because it is safe, but also because they believe it can help them pursue their purposes and achieve their goals. And, conversely, computer technology remains undomestic not only because it 'fails' to provide safety and comfort, but also because it is imbued with a number of symbols and meanings that are felt to be alien or unacceptable.

In an effort to analyse how families integrate computer technology into the home and conceive of it as domestic or undomestic, we have uncovered a number of processes that may contribute to turning the home computer from an undomestic to a more domestic state. We have observed, for example, that families and family members engage in rituals and ceremonials, as well as more 'menial' routine practices, in order to make computer technology more habitual and familiar. Through the enactment and repetition of such practices, which are charged with meaning and symbolism, families create rules and norms that shape (and are shaped by) the way they conceive of computer technology and relate to it. We have also seen that increased knowledge (often associated with an interest in the technology) contributes to making the initially alien and opaque workings of computers more understandable, and thus more familiar and acceptable.

Another element that emerged from our analysis is that individual or group enthusiasm and faith in the potential of computer technology can also be seen as being part of the process of domestication (or the motivation to try to domesticate),

since it contributes to turning threatening characteristics of computer technology into perceived means of empowerment. The expression 'threatening characteristics' is deliberately broad and unspecific, as we wish to convey the idea that different individuals have different perceptions and interpretations of what is threatening and what is not. For some, the uncomfortable or threatening aspect of the computer resides in the perception that it comes from the world of work. For others, these threatening characteristics may be embodied in the ethical challenges posed by having a 'window into the outside world' located within the domestic sphere. Others may be concerned with the unpredictability of the workings of the computer itself, that may break down at the most unexpected moment.

The notion that the home computer is an empowering tool is not a universal phenomenon. Some of the respondents clearly believe and embrace this notion. It is the case for Bernard Sharma, who displays the firm belief that the home computer will empower, not so much him, but his daughters. But others do not seem to relate to the computer as an empowerment tool, at least not in the same terms. Respondents such as Jane and Richard Williams, for example, have a way of patronising it, downplaying it, or emphasising its failings or awkward and cumbersome aspects when reporting that they do use it ("it's a useful thing, but…"). In being dismissive and studiedly casual about it, they make sure that their point is put across, that they will not let it dominate their lives. The notion of empowerment may seem to find little resonance in the accounts of such respondents. And, yet, when one examines carefully the situation, the idea of power is very much present in their accounts. They may not feel that they draw power

from the computer to achieve higher goals in their lives, but we would suggest that, through their dismissiveness of the computer, they are building power over the computer itself and over individuals around them who are weaker to the charms of the computer and let themselves be drawn into its circle of power.

The interviews have also shown that some individuals try to channel the perceived magical properties of the computer to achieve their goals. Here, we have an example of the fluidity of the concepts of domestic and domestication. Some respondents may try to 'break down' the magic to render the computer a more common, 'everyday' object, with no mystery, acceptable in a domestic world where there are few secrets. Others, like Jeremiah O'Leary, use those magical properties to reinforce their status within the domestic sphere and carefully preserve the enigmatic, mysterious and powerful image of computer technology. In both cases, we will argue, we are in the presence of a process of domestication. Whether the magical properties of the home computer are exposed, explained and put at the service of the whole family, or if one particular member of the family takes on (we might even say is given) this mediating role, they equally can be seen as part of a process that serves to make the computer more domestic and to carve it a place within the domestic sphere.

The accounts from the interviews show vividly that domestication is a complex process. Because people conceive of the domestic or the undomestic in a multitude of different ways, they engage (or not) in the process of domestication in as many different ways.

Figure 6.2 provides an overview of the main themes that we have discussed in this chapter. It lists some of the principal elements that contribute to making the home computer either domestic or undomestic and depicts aspects of the process of domestication found in this research.

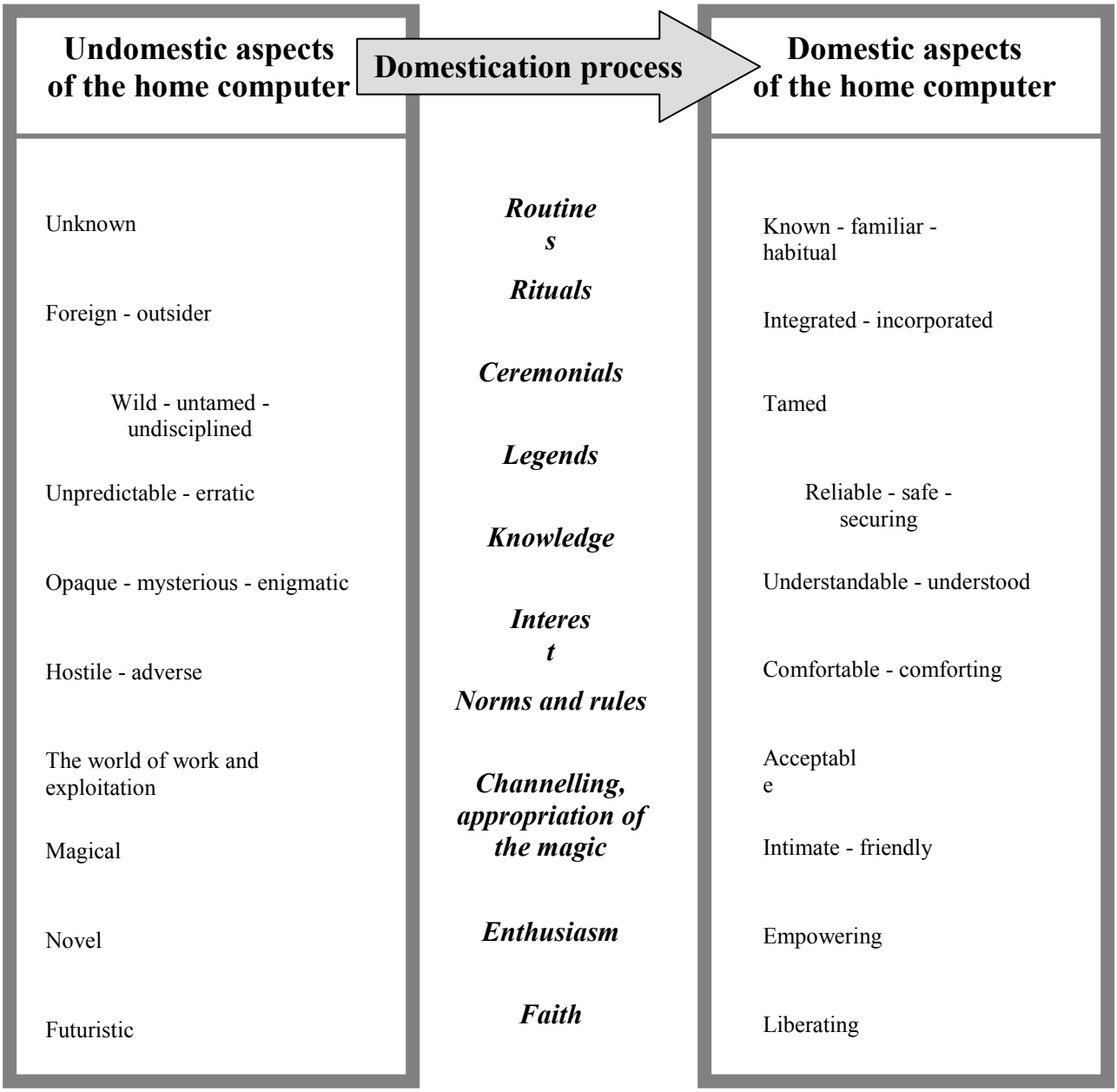



Figure 6.2: Summarising the process of domestication

It is perhaps necessary at this stage to remember that such a figure is only meant as a summary. We need to keep in mind that, just as any figure or table, it is highly schematic (and, if taken out of context, restrictive). In particular, it must be stressed that, although some of the concepts exposed in this figure may look 'antithetical', we do not build or support any type of duality theory in this thesis. Instead, we urge the reader to remember that all the concepts exposed here are charged with local meanings and that those meanings play a crucial role in shaping individual and family interpretations of those three notions.

This idea of the domestic as a 'local' or situated concept is central to this thesis. The interviews give a vivid illustration of this notion. They provide us with snapshots of an intimate, private world, where notions of what is deemed domestic or undomestic are surprisingly different. We see that what is tolerable to one person would be totally unacceptable to another and, conversely, that one person's opinion on how to tackle a particular problem situation would be utterly irrelevant for another (who might not even consider the situation as a problem).

Finally, we wish to emphasise that the analysis presented in this chapter is not intended to provide any single definitive model or theory. However, we believe that the analysis presented in this chapter helps us further our understanding of the computer in the domestic sphere and appreciate its domestic and domesticable character. We also believe that this analysis provides a useful starting point for further research, as will be discussed in Chapter Seven.

# CHAPTER SEVEN: CONCLUDING COMMENTS: DOMESTICATION IN CONTEXT

> To understand a message is to decode it. Language is a code. But every decoding is another encoding.
>
> David Lodge, *Small World*

## Section 1: Distinctive focus

This research has intended to offer a distinctive and new view of computers in the family and in the domestic sphere. To achieve this it has stepped out of the work-centric tradition of computer and information systems research and immersed us into the relatively unexplored world of technologies, ideas about technologies and conceptions of computers within the life of families. As this research has developed, a number of themes and have been identified and investigated. A large part of this thesis has been concerned with exploring themes and issues derived from a review of the relevant literature and this as been developed further through the analysis of the empirical data.

One of the original features of this research is that it considers the whole 'computer experience' in the family, or, more importantly, the whole 'family experience' around the home computer. The use of an at first sight vague and unspecific expression such as 'family experience' is deliberate: this research considers a wide range of activities carried out by family members not only with and through the

home computer but also around it. This research has also covered the whole 'life span' of the home computer in the family from the first discussions about acquiring a computer through the purchasing process and the various phases of use and appropriation of the computer in the domestic sphere. The sequence and length of those phases do not follow any type of universal pattern, but it is possible to identify some general trends. For example, in all of the seven families under investigation, there was evidence of the existence of an 'introduction' phase, a phase of maturation where computer usage becomes more routinized (as suggested in Steinfield *et al.*, 1989), and one or several breaks in the routine (as could be inferred from Giddens's work). Those 'breaks' are of various types, ranging from the acquisition of a new piece of software or hardware to technical crises such as the breakdown, disposal or replacement of a major component. They also include moments at which family members crystallise their attitudes to computers and insist on some change (even the disposal of the equipment).

Another original feature of this thesis is that it focuses on the family as the unit of analysis and not on the household. This allows for a deeper investigation of interpersonal family relationships both within and outside the home. As we have seen throughout this thesis, family ties extend well beyond the walls of a house or an apartment and the extended family or community often turns into a well of resources into which family members are likely to dip. Grand-fathers, brothers-in-laws and ex-wife's boyfriends are called to the rescue when there is a need (or an opportunity) to borrow software, get hold of an extra printer, find the necessary skills to build a customer database, or get some insider knowledge about where to

find a particular type of toner cartridge. This thesis also showed that, when talking about home computers and families, the notion of 'resources' cannot be restricted to the original concepts of time, space and budget as identified in Chapter Four. This work has extended the notion of resource to include other resources such as knowledge and interest, as well as 'moral' and ethical resources, as when religion or moral positions shape how the computer is thought about.

A number of themes have emerged from the empirical and analysis stages of the research. At the end of Chapter Six we have proposed to organise these themes in a model that considers the computer in terms of its status as a domestic object, an alien or undomestic object, and the processes and strategies of domestication, which give the computer a domestic role or status. We have suggested a number of elements that may contribute to render the home computer undomestic in the eyes of family members that use it or live with it, for example in its relationship to the world of work or more broadly to the 'wild' life beyond the comfort and security of the domestic sphere. We have also suggested a series of processes that participate to making the home computer a more domestic object. Our analysis reveals the existence of various procedures or stratagems that families or individuals may use to bring the home computer from an undomestic to a domestic status. Such procedures include the creation and re-enactment of routines, rituals, ceremonials and family legends, as well as physical placement and establishment of rules and norms of behaviour. We have also explored the perception and appropriation of the perceived magical aspects of the computer and the cultivation of faith or belief in

the computer as a symbol of a family's commitment to the future and to a certain idea of progress.

## Section 2: Methodological aspects

As a starting point for this research, we acknowledged the need to capture the significance of the events related to home computer use in the family. In particular, we emphasised the need to consider these events not as isolated incidents related to individuals, but as an integral part of the whole 'computer experience' of a family together. With this goal in mind, we have considered the relevance and utility of interpretive approaches and elected for ethnographic techniques as the most appropriate instrument for achieving our interpretive goal.

Thus this thesis focuses on articulating how technology is perceived and interpreted within the family, how it is incorporated within and throughout the daily routines of families. To that end, the dissertation draws a series of 'family portraits' based on a diverse set of elements gathered from in-depth interviews. Those interviews were conducted with particular care to minimise the constraints arising from the use of too rigid interview guides, thereby letting the respondents express their feelings and concerns as freely as possible. Presenting the data under the rather 'raw' appearance of interview transcript is important here. The intention is to preserve the 'freshness' and authenticity of respondents' account of their own experiences, and to make it available to the reader without any excessive intervention by the researcher. By providing a study of day-to-day life around the home computer, this thesis offers not only a series of snapshots but also an opportunity for developing a

broad but situated understanding of family *quotidian* existence in relation with a particular piece of technology, a life within the domestic sphere. In studying - among other themes - conflict and contradictions within the family, this work offers a novel interpretation of family interactions around the computer. Such interpretation includes, but is by no means restricted to, the study of communication and communication gaps within the family, as well as tensions, conflicts and negotiation techniques.

This thesis advocates the need for an understanding of home computer technology not only through its physical manifestations and functional character but also through its significance and meaning for family members. This work is fundamentally based on a model that sees families engaged in an on-going process of appropriation of the home computer, in which the meaning of the computer is constantly interpreted and reinterpreted. In particular it reflects on the computer as an object of domestic life (or perhaps an actor in domestic life), potentially drawn into the inner sphere of trust, empathy and emotional relations.

Of course, this research does not escape the inherent limitations of an ethnographic approach. As discussed in Chapter Three, any data collected through the use of ethnographic technique is bound to be socially constructed through the interaction between researcher and respondents. It has to be acknowledged that I mainly provide in this work my own interpretations of the interviewees' interpretation of what they see and do. Those limitations are augmented by the fact that I am still a beginner, and, in many ways, an amateur, in the field of ethnographic research. However, this first venture in the world of ethnography has provided me with a

unique opportunity to 'learn by doing' and to create a basis on which to build for my future ethnographic research endeavours.

As discussed in Chapter Three, the word 'ethnography' commonly conjures up images of researchers 'going native' in a 'foreign' community, often in a distant and exotic location and for an extended period of time. Within the world of information systems, what is referred to as 'an ethnography', although it is typically carried out in an organisational setting instead of a village or a community, shares most of the principal characteristics of more 'traditional' ethnographies from the anthropological discipline. Research projects such as those of Suchman (1987), Zuboff (1988), Orlikowski (1991a) or Hughes *et al.* (1992) present many similarities with 'pure ethnography' works of anthropologists, as well as acknowledging their differences. They are all based on intensive fieldwork within organisations and researchers have all immersed themselves in the lives (at least, the working lives) of the people they studied. Such immersion has allowed for those researchers to interact directly with members of the organisations studied, thereby gaining first-hand experience of their work patterns and of the context within which this work is performed.

There is no question that the work described in this thesis differs greatly from traditional ethnographic work not only within the anthropological tradition but also from the information systems tradition. For a number of reasons outlined in Chapter Three, I chose not to perform or even attempt to perform any type of 'immersion' in the life of the families I studied. However, the combination of in-depth interviews and visits of families at home did provide me with rich accounts of

family life around of the computer. In particular, the interviews allowed me to document in detail the contextual situation of each of the families under investigation. As any reading of the interview transcripts would show, descriptions of the specifics of computer usage within the home only make up a very small part of the information gathered throughout conversations with families. The conversations covered an amazingly wide array of topics ranging from religion to sports, television programmes or Shakespeare's sonnets. Respondents shared with me travel stories and cooking tips, and some did not hesitate to ask me questions in return. I was sometimes faced with the most unexpected questions:

> Duncan: When is the last time you sat down and considered what beauty is?
>
> Cassandra: We never had problems with head lice when I was at school. Did you?

Indeed, while conducting my interviews, it was sometimes difficult getting information that was not background or contextual information. The respondents were often much more eager to discuss issues that were only very remotely connected (if at all) to the initial focus of family uses of home computers and, with hindsight, I can see that my own keenness on producing rich accounts may have led me to let the conversation drift a bit more than perhaps necessary on more than one instance.

The gathering of information throughout extended conversations is not the only element I will use to support the claim that this research is inspired by the ethnographic tradition. What I call 'ethnographic techniques' in this thesis refers to a number of tools that this work borrowed from the tradition of ethnography in

order to carry out its interpretive goal. Throughout the analysis phase, we sought to bring together the various themes emergent from the interviews and to explore the interconnections between those themes and the notions and concepts initially identified as relevant to the research. The first process of 'emergent themes gathering' was carried out in what I would refer to as a 'purposely jumbled' way. This was done in order to avoid prioritising excessively at a too early stage. This strategy was directly inspired from the ethnographic tradition, where careful attention is given to details in order to reduce the chances of overlooking a critical element or event. The ethnographic work of Monteiro and Hanseth (1996), in a study of information infrastructures in the Norwegian health care sector, offers a striking example of how what could have been considered a 'mere technical detail' (understanding how pharmacies defined 'identifiers' for prescription drugs) became the centrepiece of the findings, providing invaluable insights into the workings of a complex social structure.

The deliberate avoidance of prioritisation in the 'theme-gathering' process turned out to be a fruitful enterprise in this research. For example, the topics of magic and mystery looked at first very auxiliary to the research, but a small number of incidents in the transcripts led to a re-reading of the interviews and revealed the presence of those underlying themes in many more places than I would have suspected at first. This theme also turned out to be related to a number of other prominent themes such as the making of identity, the notion of 'power of the technology', and the related concepts of trust and belief, fear and avoidance of technology.

## Section 3: Further research

When it comes to proposing areas for further research, the first idea that springs to mind is to perform more interviews with the seven families presented here. Because this research was committed from the start to using an interpretive approach, we believe that further research would ideally embrace the same approach. As discussed in Chapter Three, it is our belief that an interpretive approach best equips us to map out the place of computer (and future) technologies within the particular social context of the domestic sphere (and other social contexts).

More observations into the changes and evolution of families and family members around the home computer would contribute to making this research more longitudinal, covering a longer time-span, therefore enabling us to draw even richer portraits of the studied families. This could be done using other types of research data collection techniques such as using video (common in much ethnographic inspired research) in the home or installing 'tracking programmes' in the home computer. In this way we may perhaps achieve a richer picture of actual usage than the one that can be obtained solely from conducting interviews or from (often poorly completed) usage logs. Another path towards enriching the portraits would be to assign more than one researcher to the task, or to give different roles to researchers. Two or more researchers would certainly draw different and perhaps conflicting accounts of a same event or a same conversation thereby contributing to achieve an even richer picture of the family situations under investigation.

Nevertheless, confining our research horizon to a group of seven families could be seen as unduly restrictive and we would suggest that any further research might benefit from investigating either other families or other human groups. In particular, we see that the relevance of this work goes beyond the study of families and homes, and can include groups such as communities, businesses and organisations.

***Studying other families***

The next obvious direction for further investigations is to carry out the same type of study in other families, of different types and in different geographical or social environments. Of course, every family is unique and develops its own particularities and singularities, in a way that seems to defy any type of categorisation. But we must recognise that the seven families studied for this research had some common characteristics and that further research could benefit from looking at families that do not display those particular characteristics or not in the same way.

For example, the seven families studied for this research all contained at their heart children or young adults and this characteristic certainly played an important role in shaping families' attitudes towards the home computer. It could be hypothesised, for example, that families' preoccupations with 'building a better future' are strongly influenced by the presence of younger members in the home. It would be interesting to study families without children and, perhaps, compare their behaviour and attitudes with those of families with children.

Also, the families studied here were all or partly British (with one exception) and resided in large or middle-sized cities in the South of England. It is evident that these characteristics played a significant role in shaping families' attitudes towards the home computer. Further research could involve studying families in rural areas, in other European or non-European countries, and carrying out trans-national comparisons. Other elements of culture such as ethnicity, religious beliefs of political orientation could also be studied in more detail in relation to home computer use in families. A related topic of investigation could be the study of families that do not fit the 'nuclear family' pattern often present in the cases studied in this research. For example, it could also be interesting to research computers in single-parent families or in families with a large number of children.

In this research, some families owned one home computer, others owned two or more. However, not all the home computers present in the home were necessarily in use at the time of the interviews. Two of the interviewed families had 'abandoned' computers at some point over the last few years, one (the Williams family) because the computer was getting out of date, the other (the Ahmed family) because the computer was judged to be too disruptive an element within the family's routines and lifestyle. In other families, two or more computers were used concurrently by various members of the family for a variety of tasks. Further research may set to elucidate patterns of domestication of computer technology in families owning and using more than one computer and study how families adapt and evolve around a growing number of home computers. The parallel here is perhaps with the move of

the television from one per household and in a public space to a more private and individual technology often located in bedrooms.

In addition, it would be interesting to visit the same respondents both at home and at their workplace (or school) and observe how they interact with and around the computer within and outside the domestic sphere. This will allow for a meaningful comparison of the process of domestication of computer technology in various areas of social life and may validate some distinctions between the domestic sphere and the world beyond.

Finally, one may choose to study families where one or more members have been identified as having special needs or requiring special treatment that may be facilitated by the use of the computer. For example, one could think of certain types of disabilities such as blindness or motor incapacity, in connection to which computers are heavily used. In such families, the home computer may play an even more varied set of roles, which may in turn shape its status as a domestic object and the process of domestication.

***Further research in other human groups***

As we can see, the possibilities to conduct further research among other types of families are abundant. However, in our contemplation of what paths we could pursue for further research, we should by no means restrict ourselves to only considering research within families. Although the family is a very particular type of human grouping, insights into its workings may prove valuable when studying other types of human groups, including groups that belong to the world of work, or

leisure, or special interests. In particular in CSCW fields the study of technology as an adjunct to team work might benefit from some of the insights that this work offers. Human organisations can take an almost infinite variety of forms, ranging from a village chess club to a multinational corporation. The purpose, structure, and appearance of such organisations may differ dramatically but, underneath, they are all groupings of humans that make use of specific skills, shared values and material tools (technological or not) to achieve a particular, tacit or explicit goal or set of goals. In that sense, any study of a human grouping that takes an interpretive approach, with or without the help of ethnographic techniques, is to some extent related to the work conducted for this research.

However, because this thesis has studied principally the domestic sphere, it might be particularly applicable to those groups of people who live in communities that are not necessarily called homes but are nevertheless living environments for a number of persons that share a particular demographic characteristic or lifestyle. For example, it might be interesting to study life around a computer in an old people's home, a live-in medical care centre, a shelter for refugees, a kibbutz, or even a student hall of residence. In particular, in those cases where computers are introduced specifically in order to improve the lives of elderly or disabled persons, one may want to study the way they are used, shared and thought of not only within homes but also in a community environment.

The word 'community' is usually used to refer to a group of persons living or meeting more or less regularly in a same location. However, we must not forget that sharing a common location is not a prerequisite to the existence of a

community. The term community may be used to refer to a body of persons of common interest scattered through the larger society. Those persons may never have met each other physically but their sharing a particular characteristic or interest nevertheless forms a bond between them and provided them with a feeling of community. The Internet facilitates the creation of and the participation to such communities**.** A growing body of literature is dedicated to the study of those new, imagined or virtual communities (Rheingold, 1995; Holmes, 1997; Surratt, 1998, Sinha, 1999; Smith and Kollock, 1998; Blake, 1998; Kubicek *et al.*, 1999). Further research may study inter-personal relationships around and with technology within those communities. One could also investigate how belonging to one or more virtual community shapes and is shaped by an individual's role or set of roles within the family. One could study, for example whether and to what extent an individual's participation in a virtual community reinforces his or her ties within the family or changes the nature or intensity of those ties.

***Building on the themes emergent from the research***

We have so far dealt with the question of *where* further research could be carried out and have not brought up the question of *how* such research might be developed to build on the findings of this work and develop the emergent themes that have been presented in Chapter Six. In particular we see a strong opportunity for further research to build on this study by exploring more closely the areas of 'the domestic', 'the undomestic', and perhaps most importantly, the process of domestication of computer technology within the family.

Such an exploration will by no means be free of complexity. In working at 'opening the black box' of 'the domestic', to reveal 'the undomestic', this research has made it clear that these concepts are not stable, transparent entities that can be isolated or easily identified. We also have to acknowledge that observing and analysing the domestication process is no less problematic. This research has uncovered the deeply elusive character of the domestic and the undomestic and has revealed the domestication process as intricately embedded into everyday practices and individual and family values.

We have seen throughout this thesis that the computer has an existence of its own within the domestic sphere, not just a linear one, but also a cyclical one, or rather a number of cyclical ones. Through this existence or this series of existences, the computer is charged with meanings and symbols, and with a number of characteristics that may contribute to making it more or less domestic or undomestic. We have also observed a certain tension between the domestic and the undomestic and we have seen that this tension may develop or diminish over time. Our investigation has revealed that families or family members feel and relate to this tension through processes of domestication that aim to remove or constrain the undomestic characteristics of the home computer and create or invent a new 'identity' for the computer, as a more acceptable and domestic object. We have also seen that these processes of domestication are by no means universally embraced and that patterns of acceptance or rejection may draw on and mirror deeper preoccupations and conflicts.

Further research could pursue and expand on these themes, using them as points of departure and, through a similar process as the one used here, enrich our present understanding of these three notions. However, one of the lessons we have drawn from this research (as the 'story' related in Chapter Four testifies) is that there is no clear-cut prescriptive answer to the question of 'where to start from'. The themes and emergent areas from this research may form a 'pool of ideas' where further research may pick a number of 'starting-point concepts'. However, this pool could not and does not pretend to be comprehensive. Other themes from new or broader areas in the literature will necessarily have to come into play when preparing for further research.

## Section 4: A final contribution

Finally, we must understand that the home computer is now an established component of social life within and outside the family. Yet, many of the discussions about the home computer and information technology in general tend to be cast in black and white, in either utopian or dystopian terms. Information technology is often seen to be the harbinger of either great liberation or great enslavement. The growing availability of electronic information is seen as both an opportunity for new forms of creativity and as a means for the dominant institutions of society to reinforce the grip they have over our lives. But this work helps us to see this in more subtle and nuanced terms. Technology is not just an institutional prerogative, it also has a life of its own within the family and the domestic. In the end, the trajectory and consequences of this technology (and of the technologies

that will come after) are perhaps more shaped in this world of families and quotidian life, than in the plans and projects of the formal institutions.

When this thesis considers the interaction between families and technologies as a series of negotiations, it reveals the adoption of computer technology by families as a complex and extended bargain. Families enter this bargain with a series of expectations regarding the 'costs' and 'benefits' of the 'deal' and the consequences of the bargain are played out across generations and operate through many layers of symbol and ritual.

> Well, well. Bravo, Casaubon. Science and magic going arm in arm, eh? Great idea. Let's pursue this.
>
> Umberto Eco, *Foucault's Pendulum*

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