MOBILITY IN DAILY LIFE. THE CAR AND USE OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR FAMILY LOGISTICS

A study of the interplay between information and communication technology and travel in the organisation of everyday life in an urban area

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Abstract: The point of departure of this paper is to examine the interaction between the uses of ICT, in particular mobile phones, physical mobility and social life in an increasingly differentiated and distributed daily life among families with children. In the families of this study different time use arrangements are tied to the use of the car and the mobile telephone. At the one extreme we find the structured where all the activities are planned – both in time and space – and all the assignments are divided between the various members of the family. On the other hand we see families where everything is done spontaneously and there is very little planning aside from the fixed portions of life. The structured and ad hoc systems are two extremes on a scale where there are many alternative solutions. The families in this study represent positions between the extremes tending towards the ad hoc end of the spectrum. The car and the mobile telephone are devices that allow this type of organization, which seems to increase daily transport by car. The empirical analysis is based on in-depth interviews of 25 families in the Oslo region.

Key-words: Everyday life, mobile phone, ICT, car use, families

Introduction and background

Daily life in families with children in urban areas consists of a series of tasks spread over a relatively large geographical area, with many activities previously carried out in the home or neighbourhood now taking place at some distance from the home. In the majority of families, both parents are in paid work, living in one place and working in another. With the development of "new" family structures, more children are experiencing the separation of their parents, and everyday life is becoming more complex. The flexibility of working life and the reduction in collective shared temporal structures is individualizing daily schedules and spatial-temporal patterns. The spatial and temporal structures of daily life can be seen as the origins of time pressures in everyday life, and are often connected with the need and demand for reliable transport and good communication. The differentiation and distribution of daily activities has opened the way for new and more flexible forms of information and communication technology (ICT), such as the mobile telephone and e-mail, coordinating the interaction between family members.

In this paper, the interaction between ICT, physical mobility and social life among different types of families is examined. I inquire into how families use ICT to coordinate everyday life and how ICT and physical mobility interact.

Complexity of everyday life

Increasing numbers of divorced parents are electing for joint custody of their children (www.ssb.no/emner/02/02/30skilmisse). Cases where the children live in two homes might be called "place-distributed families", constellations that mean that daily and weekly activities have to be coordinated across two households, with the parents having to develop arrangements and routines that take account of the practical and emotional needs of the child.

Divorce or separation affects the distribution of the family. Shift work, coupled with the geographic development of cities, means that 'intact' families also experience diffusion in terms of time and space. Parents' working patterns can be complex. In situations where the parents are in shift work, in work that requires longish periods of absence from the home, or in traditional jobs but where overtime working is necessary at inopportune times, greater demands are placed on communication between parents to take care of the family's needs. These can be described as "time-distributed families".

If we look at physical mobility, at daily travel patterns, there are clear indications that everyday life has become more spatial and temporally complex. Chauffeuring children around increased by more than 60 percent in the 1990s (Hjorthol, 2002a). The national study of travel patterns (Norway) shows that people now travel further and use the car more than ever (Denstadli and Hjorthol, 2002).

The use of ICT, in particular the mobile telephone, has increased enormously during the past few years (Ling and Vaage, 2000), with different groups in the population using the technology in different ways depending on their particular needs. Studies show that mobile telephony can contribute to increased accessibility and security, greater efficiency in planning and more flexibility in both private and working life (Jakobsen et al., 2003).

Optimistic expectations about ICT reducing/substituting for travel activities, and consequently reducing road traffic problems, have all but evaporated. Researchers are pointing to other effects of ICT on transport, namely *modification* of travel patterns and *generation* of more travel (e.g. Mokhtarian 1998). It has been claimed that good access to ICT and private transport produces greater flexibility in the organisation of work and other activities. Most studies on the interaction between ICT and transport patterns are about commuting (summarized in Hjorthol, 2002b). Few deal with how ICT interacts with everyday trips other than commuting.

Studies of use of the mobile telephone in organising everyday life are also few in number. Surveys of various social groups indicate that the mobile telephone is

used to aid communication and the organization of activities (Klamer et al., 2001; Ling and Yttri, 2001). In a qualitative study, Jakobsen et al. (2003) show that the diffused family stays connected with the help of communication technology. In practical coordination and emotional communication, both spatially and temporally distributed families use ICT.

An important question is whether the mobile telephone improves coordination of all the various activities undertaken throughout the day, or whether indeed it is a factor creating new activities and thereby burdening the transport system even further. This question has been the subject of two Norwegian studies, one qualitative (Ling, 2000; Ling and Yttri, 2002) and one quantitative (Ling and Haddon, 2001).

The qualitative material – analyses of group and personal interviews – indicates that, depending on the group, further motives for adopting mobile telephony are availability, visibility, coordination and security.

A small quantitative survey involving 93 households (two professional parents with children and a car) in the Oslo region has shown that mobile telephony saves more traffic than it creates (Ling and Haddon, 2001). With fixed telephony, the reverse is the case.

The point of departure for this paper is an interest in examining the interaction between use of ICT, physical mobility and social life in the increasingly differentiated and distributed daily life of different types of families with children. The questions address how families use ICT to coordinate and maintain relationships in everyday life, and how their use of ICT and physical mobility/transport interacts within this context.

In discussing how ICT influences everyday life in relation to organizing activities, I have tried to find answers to the following questions: Does use of the mobile telephone, e-mail and the Internet make us more effective and ease our planning of daily activities? Or, does increased access to these 'tools' change our routines and habits such that planning is rendered less important? I also examine what

interaction there is between transport and ICT in the organization of daily activities. Will there be more, fewer, longer or shorter trips, and is use of the car increased or reduced?

The paper comprises eight sections. Following this introduction, the theoretical perspective is presented; data and methods in section three, findings in sections four to seven and discussion in section eight.

Theoretical perspective

The importance of time and temporal structures

The framework of our theoretical perspectives is the perception and meaning of time and temporal structures within contemporary society. The importance of time on both policy level and individual level is significant in transport. For example, valuation standards of time requirements for transport and time savings as a consequence of transport policies are often decisive in the acceptance or rejection of transport policies and infrastructure investment projects (conclusions of CEMT round table 127 – Time and transport). Time savings usually account for about four-fifths of the non-monetary benefits of transport policy measures.

This way of perceiving time is based on "clock time", which became important at the beginning of the industrial revolution (Thompson 1967). Clock time was a necessity for new production methods requiring that all workers were at the work place when the machines started. With the introduction of clock time and the association with paid work, time became a commodity that could be bought or sold.

Max Weber's analysis of the Protestant ethic and the spirit of capitalism reflects how work, time and discipline are interrelated: "*Waste of time is thus the first and in principle the deadliest of sins. The span of human life is infinitely short and precious to make sure of one's own election. Loss of time through sociability, idle talk, luxury, even more sleep than is necessary for health, six to at most eight hours, is worthy of absolute moral condemnation*" (Weber 1970: 157–158).

This perception of time emphasises how we value and relate to time. Time 'belongs' to someone, it is a commodity that someone is responsible for, and, like other personal commodities, one that becomes more valuable the more it is under the control of the individual. Waiting time is an example of time out of control.

Waiting time can be measured in minutes and hours, and is a subjectively experienced occurrence. Time experienced in this way has been called "event time" (Johansen 1984), which is virtually the opposite of clock time. While clock time is homogeneous and makes things comparable, event time is heterogeneous.

Waiting time is a special type of event time and has important implications within the field of transport. Waiting time in the car is more acceptable than waiting time in the public transport system; there is perhaps a difference between known and unknown waiting time, and what the waiting time can be used for.

Status determines the "waiters". The more important the person, the greater the demand on his or her time, and because time is limited this value will increase with the perceived importance. Status, too, is important in relation to transport. Which form of transport has the longest waiting times and which has the best infrastructure? Signal priority for public transport at crossings is upgraded status in relation to the private car. Waiting for the bus or tram can be understood or experienced as status lowering. The traveller has no control over the situation.

People with resources and multiple choice possibilities can avoid queues by buying out to let others do the waiting. This is having the possibility to choose one's means of transport, i.e. the car instead of public transport, to gain more temporal and spatial flexibility. It is also having the possibility to travel when there are no queues.

Control of time and the status of time have been discussed by several theorists. In his book from 1900, *Theory of the Leisure Class*, Torstein Veblen claimed that the dominant classes in America defined themselves in relation to the possibility to *non-productive use of time*. Leisure time, conspicuous consumption and absence of work were the most important hallmarks of the dominant class, and the way in

which they were distinguished from the lower classes, according to Veblen. Having plenty of spare time meant high status. But this spare time included access to money, and the leisure time involved conspicuous consumption. With no possibility to fill leisure time with this type of consumption, because of low income or being unemployed, spare time is not an indication of high social status, but rather the opposite. In discussing leisure time and working time as differentiating between social groups (and also for that matter the social status of time), Gershuny (2000) claims that there is convergence between the two, indeed even a reversal of the patterns described by Veblen, i.e. working time as more important than leisure time and implying higher status. Gershuny emphasises four issues in support of his statement. High education is an important indicator of social status in contemporary society. Time is limited, money is not (you cannot "waste" more than 24 hours a day, the spending of money is unlimited - if you have it!). Short-lasting but costly and interesting leisure activities can be worth working long hours for; the contrary is having long leisure time without content. Gershuny's last point is that for a majority of highly educated workers it is the work that is rewarding, and this can be compared with what the upper classes in Veblen's analysis filled their time with.

Shortage of time, days filled with (meaningful) activities, is a sign of success rather than of having plenty of leisure time (which can also be related to unemployment). Not only is time pressure normal, it is also socially acceptable and to a certain degree status-giving.

This means that the time pressure and scarcity of time many families say they experience is a legitimate reason for various actions in everyday life. Using the car for different purposes, regardless of travel distance and accessibility of other modes, is a good example. Time pressure becomes the 'normal' social framework of daily life, and is in line with Weber's analysis of the protestant ethic. Time pressure becomes a "contemporary myth" (Ellingsæter 2004) or a "structural story" (Freudendal-Pedersen 2005) that all agree on. Both concepts refer to a phenomenon somehow beyond the control of the individual – "this is the way it

is". Such myths and stories are popular explanations of social relations, and simultaneously legitimate choices and actions in everyday life. Transport and ICT are 'tools' managing everyday activities within this framework.

Thrift (1996) claims that the subjective perception of time changes when speed in society increases. When most people in society have access to a car, the day 'allows' for more activities to take place – and time "demands" more activity. Not only time but also the perception of space might change when speed increases, and distance will be seen as shorter and less burdensome. Sachs (1984: 109) says: "*at the same moment that the car increases mobility and renders distance less problematic it is likely to affect also our sense of what distance has to offer and to threaten the mystique that arises precisely from the problem of its overcoming.*"

 Speed, represented by the car in daily life, changes the perception of both time and space.

Everyday life – temporal aspects

The temporal aspects of time are the framework within which everyday life is interpreted. The relation between everyday life and the use of 'tools' like the car and the mobile telephone can be seen in a phenomenological perspective, where the approaches of Alfred Schütz (1973), Peter Berger and Thomas Luckmann (1975) are useful. Schütz uses the concept *field of action* to describe that portion of the world that can be influenced by action. This field can be divided into two: the primary field of action, which can be reached without special tools, and the secondary field of action, if the boundary is determined by society's technical level. The car and the telephone are examples of tools that extend the boundary of the secondary field of action.

With new familial constellations there is an increase in the field of action of everyday life and thus the need for tools with which to communicate. According to Berger and Luckmann, the purpose of analysing everyday life is to develop typologies of interaction by which to gain insight into the objective conditions of everyday life. In broadening this perspective, we use Cato Wadel's (1983)

concept of the family as an "employment system". Wadel considers the household as an employment system with a set of mutually dependent activities and roles. The familial employment system exists in a mutually dependent relationship vis-à-vis employment systems such as the work place, school, day care and the transport system. Thus, within the household there is tension between social requirements when daily life is to be organized -- one's own needs and those of others, our desires and resources. Temporal and spatial structures are central in this perspective (way of thinking). The car and ICTs are tools making this employment system work, but how are we to understand the meaning and use of these artefacts within this framework?

Domestication approach

The domestication approach is an attempt to describe the purchase, ownership and use of various artefacts in terms of their interaction with the existing social context. It is not just an interest in purchase behaviour nor is it an interest in use. According to the domestication approach, technical developments – be they physical objects, non-material services or software – present themselves to users, and the users, in turn, adopt and adapt them to their special needs and situations. The artefacts can thus change the context into which they are introduced, but are often re-interpreted by the users and pressed into service in unexpected ways. It is this dynamic that lies at the core of the domestication approach (Haddon 1996, Silverstone and Hirst 1992).

Adoption of artefacts is seen as a type of ongoing negotiation. There are "negotiations" within the psyche of the owner, between the owner and the object itself – as has been well documented vis-à-vis television (Meyrowitz 19985, Silverstone and Haddon 1996, Silverstone 1994) – between the owner and other persons and between the individual and the way the broader society views them. When considering the interaction within the sphere of the home, there is often ongoing discussion with regard to the physical placement of the object, the time of use afforded to them, the rules surrounding their use and the attribution of status

with regard to the use of the objects are all negotiated. In the words of Haddon, domestication of the object is thus not an "one off" process.

For households, the car and the mobile telephone are artefacts interacting with each other and with members of the family. They are at the same time conditions for organizing everyday life, and their use changes depending on the needs of the user. The question is: how do these processes operate in different families?

Data and method

Based on the issues developed above, we used a qualitative method to allow an in-depth study, and families from the Oslo area were chosen so that 'place of living' was constant. We interviewed families with children in two different age groups, 4 – 8 and 11 – 15 years of age. Our goal was to gain insight into the various interactions between virtual and physical mobility, between ICT and transport. While the youngest age group were entirely dependent on the daily care and attention of their parents, the older group were more independent.

We carried out a total of 25 interviews. In the 10 "intact" families, these were done with both partners present. There were 15 interviews with the "place distributed" families, and in 5 of these the partners were interviewed individually. The distributed sample consisted of nine women and six men. Before the interview, the respondent completed a diary of a day of activities that included travel and use of ICT. Routines, interaction between travel and ICT were emphasised. The interview started with a discussion of the diary, and an interview guide with a checklist of specific topics was applied. The interviews lasted between 30 minutes and 1.5 hours and were taped and fully transcribed. They were coded in two sections; one for the diary and one for the rest of the interview. The coding process included several stages: an "open" reading of the material, coding according to the interview guide, and finally checking the non-coded segments.

All except three households had at least one car. The three without a car were among the distributed families where the woman was the head of the household. In addition, four of the same category of household did not have a landline telephone. All of the intact and eight of the distributed families had access to the Internet at home. Four women were among those without an Internet connection. In this paper, we concentrate on communication between spouses in 'intact' families and between parents and children. For other aspects of the study, see Hjorthol et al. (2005).

Obligatory activities – between work and family life – the meeting of two time cultures

Parental commuting and the children going to school or day-care constitute the framework determining the daily lives of families. These are the mandatory trips and activities that must be coordinated and carried out.

Day-care children – as well as many of the youngest school-age children – need to be accompanied to these locations. The majority of couples divide this activity, usually with one of the pair delivering the children the other retrieving them, depending on the individual's job situation. Several of the women are in shift work – nurses and airline flight personnel – and thus their delivery and retrieving of children is adjusted to their work routines. The trip to work is often coordinated with other tasks, including the delivery/retrieval of children and the purchase of food and other items for the home. Still more women than men are responsible for taking children to school and day-care centres. The national travel behaviour survey shows a significant increase in trips accompanying children in the 1990s, most of them by women (Hjorthol 2002a).

A working couple with small children often spend much of the day at various locations. Not all arrangements have been agreed beforehand as to who will coordinate the practical household assignments – who will prepare dinner, who will deliver the children to after-school activities. Access to a mobile telephone or

a landline telephone, and access to at least one car in the household, reduces the need for detailed planning, even though the most important arrangements are often made in advance.

Here is a typical conversation:

> INTERVIEWER*: Do you often call your wife during the day?*
> MAN*: Yes, we talk with each other at least once a day.*
> INTERVIEWER*: And then you make arrangements about delivering or picking up the kids?*
> MAN*: No, that is usually planned, so long as nothing unforeseen has happened, but we talk about shopping for dinner, small matters and other practicalities*
> INTERVIEWER*: About things that are going to happen and who is doing what?*
> WOMAN*: Yes!* (Two children, 6 and 9 years).

As this quotation shows, few activities in this family are planned. For other families it is difficult to plan because of frequently changing work schedules. Arrangements have to be made during the day, and often it is necessary to remind one another by sending a message, very often by a text message (SMS). In most families with school-age children, there are regular weekly activities and the children are chauffeured around.

> WOMAN (41): *There are some activities nearly every day.*
> MAN: *Having children then ...*
> WOMAN: *They are so active.*
> MAN: *Yes, but I would rather drive them to their football training than drive around looking for them* (three children, the eldest 18 years).

The interviews show how active the lives of the parents are, particularly those with younger children, and the energy needed to keep one's head above water in a hectic life. Our material shows how couples often develop set routines that they use to cover the family's needs, but all the requirements of everyday life create stressing situations and time gets out of control.

> WOMAN (44): *I think everyday life is very hectic most of the time, especially related to work.*
> MAN (40): *I think social life, too, is very stressing. I think we are putting too much into it!*

WOMAN: *One does too much (two children under 3 years).*

A young mother with two children -- one in a day-care centre, the other in primary school -- says she has gone from very little to a great deal of planning:

> *Now we are on the other extreme. We feel that we are planning all the time; who is doing what, where we are and who you are (laughing) I nearly said. Because it is obvious that there is much more stress, and we both have jobs that demand we work more than the normal 8 hours a day. So it has been an enormous change. The children are in day care/school, and they are not in the same place, so there is much more organising of everyday life. First, I have to take one there and then the other there before getting to work at a certain time, and the opposite for the one who picks them up. Yes, careful planning; then what to eat for dinner, who is going to make it and who is shopping – all this has to be planned – oh yes! (Mother of two, 36 years)*

The family and work are institutions demanding commitment and loyalty, and for families with small children, family time and work time overlap to some degree. In some families this is solved by the day being planned in detail in advance. In others, the partners have more contact during the day, often via the mobile telephone, for making appointments. This latter situation results in more use of the car for small errands.

Flexible routines – flexible times – changing during the day

For intact couples, daily routines often slide into a pattern in which both partners generally know what needs to be done and who has to do it.

The partners complement each other. Interviewees speak about the systems they have developed and the interviews reflect obvious examples of the family as a type of employment system, where the interaction with other social institutions – both temporally and geographically – determines the practice of everyday life.

Routines include use of technologies such as the car and telephone (both land line and mobile). In the process of satisfying the different demands that have to be met in everyday life, the partners discuss how important it is to have effective (timely)

and flexible transportation. For these parents, public transport is seldom seen as a real alternative. They all say it takes too much time. In addition, the need for coordination is facilitated with the use of mobile communication. Agreeing on things beforehand is therefore less necessary than it once was, people say. One example is use of the mobile telephone in connection with daily shopping, i.e. items that should have been on the shopping list being added as one partner is in the act of shopping. Unclear items ("Was that whole milk or skimmed milk?") can be specified 'on the hoof'. In this way, the mobile telephone provides flexibility in the purchasing of daily items and means that traditional planning can be reduced. It also means driving to different shops on the way home from work, which modifies the travel pattern and to a certain degree increases the transport (ICT generates more travel).

For the majority of couples, arrangements sometimes have to be changed, and e-mail, telephone and mobile telephone are used for rearranging:

> INTERVIEWER: *How do you change arrangements or appointments?*
> WOMAN (34): *Telephone. The mobile. Very much the mobile phone.*
> MAN (33): *If I see at half past three that I can't go home at four o'clock, I call her on her mobile phone to say that I am not coming home for dinner, and that I cannot pick up the children. This also happens for her, we share the tasks* (Two children under 10 years).

As things change during the day, it is the mobile telephone that is used for making the rearrangements. A second car in the household is often used when changes have to be made at short notice. The telephone is also used to activate the social network.

> WOMAN (40): *Suddenly the children's tennis lessons were moved to Saturdays. And now they are practising with one hour's interval. It is a bit inconvenient.*
> MAN (44): *It means more use of the telephone. Sometimes we drive, and sometimes some of the other parents. It means more arrangements «Can you drive, can you ……». Then I most often use the mobile phone if I am not at home. It is possible to be more flexible than before; that is both the curse and the blessing of the mobile phone!*
> WOMAN: *Yes, it happens very often that he drops into the shop on the way from work, and then he calls and says 'is there anything we need'?*
> (Two children in primary school).

Technology, particularly the car and the mobile telephone, is part of this process in different ways. The family's second car is used to deliver the children to various activities while one of the parents uses the other car for commuting either locally or to more distant job locations. The mobile telephone is used to organize spur of the moment purchases and to coordinate who will fetch which child from which school or day-care centre.

Time is filled with activities — use of the mobile telephone in the car

For a stressed family with small children, time in the car is open time and, with access to the mobile telephone, this is an opportunity for conversation. Many of these parents have long work trips and this is time when they can converse with a focus more on maintaining their social network than on coordinating their everyday lives. Mobile telephone use in the car is thus time when one can communicate with family, friends and partner.

The mobile telephone combined with driving is an opportunity to utilize what Fortunati (2003) calls a 'folder' in daily life to interact with others. One of the couples put it like this:

> WOMAN (44): […] *I usually don't call so much in the afternoons. I very seldom use the land line phone at this time. It happens I call my mother or father when I sit in my car on the way home. It is not every day, but now and then. On the way home, in the car, because then I have time to think* […]
> MAN (40): *It is usually on the way from work one takes the phone calls. I didn't do this today, but it is usual, actually. It is the only time one has.*
> WOMAN: *It is not every day, but you start to think about a friend you have not talked to in ………*
> WOMAN: *When I come home a lot of things are happening; making dinner, helping with homework. To sit down and call friends becomes an effort. I have half an hour's drive from work, so I call them at home on my way* (two children).

Many of the women we interviewed had contact with their mothers during the day. A "nice" talk of this type was mentioned by half of the interviewees in the intact families and also by several of those who were separated or divorced. The principle behind these incidental conversations in the car seems to be a way in which time while driving can be used to do two things at once. Several of the interviewees mentioned this sort of conversation while driving to and from work, thus indicating that it is acceptable to have an expressive conversation with one's partner or friend in otherwise "dead" time.

> MAN (33): *When you sit in the car with the plug in the ear, it is very easy to have small talk with friends.*
> INTERVIEWER: *Do you also make more phone calls?*
> WOMAN (34): *I do not make so many calls at home. It is more often to and from work, and in the car. I call my sister, friends, parents.*
> INTERVIEWER: *What do you usually talk about?*
> WOMAN: *It's about everyday matters. How life is now.* (Two children).

The expressive and emotional aspects of mobile telephone use are combined with the obligatory work trip. Since one is necessarily in the car in order to commute – and perhaps the person they are calling is in a similarly disposed situation – the time can therefore be used for something they like doing, for example calling a friend or partner.

What we have here is a combination of the physical and the virtual forms of communication. It is a blending of the instrumental, the obligatory in commuting to the job, and the expressive conversation with a good friend.

The mobile telephone conversation in the car can include planning and making arrangements. One can agree with both friends and partners on later activities in this context in addition to the more emotional dimensions of the contact. Parents can take this opportunity to coordinate daily purchases by calling the person in the car, or vice versa. In this case, the aspect of time-saving and efficiency is prevalent in the interaction between ICT and transport.

Surveillance of children

Practical care giving

For pre-school and younger school children, it is the parents who agree among themselves about arrangements. The children have little influence vis-à-vis their delivery and retrieval. The parents agree upon these planned trips beforehand. If there are to be changes in the delivery/retrieval of the child, the parents call each other to ensure that the changes are confirmed. E-mail or text message are often seen as being too suspect in this situation.

The situation is different in families with children old enough to manage their movements themselves and who can help with their younger siblings, but they too require transport, especially to and from their leisure pursuits. Many of the elderly children use public transport or cycle to and from school, while they are driven to their various activities in the afternoon.

As a father of several children says: *The children are driven to and from. We try to be helpful. If we have the possibility, we do it. We try to do what we can for our children.*

It is obvious that the children in this family exploit the kindness of their parents. The most frequent text message from his daughter of 17 years is – *come and pick me up*! This is a common message from children to parents, and a clear example of ICT generating more trips by car. The parents also realise that they are establishing a 'feeder service' with their extensive courier system. On the question of why children contact the home when they are out, he answers: *they want service because they are so lazy and too listless to use public transport. And we are stupid parents who accept their demands without question.*

Control and security

The children's ownership of mobile telephones means that parents can generally reach them regardless of where they are. For many parents, this is some security

on a daily basis, but the children sometimes 'leave' their telephone at home or do not turn it on in order to escape the surveillance of their parents:

> MAN: *Yes, when the mobile phone is not turned on, or in silent mode –you hear the voice saying that contact is not possible or something like that.*
> WOMAN: *Then you get stressed, you see. It happed to me yesterday, I tried to call her (the daughter) on her mobile phone. I knew she was supposed to be finished at school half past one, and I called six times without getting any answer. And I thought – this cannot be right, because she had an appointment at the hairdresser at two o'clock, and then I thought something might have happened on the way home, so I called again and again. I nearly became crazy, you see. But then I called to the mobile of one of her friends, and she told me they had been in the gymnasium, decorating for an arrangement, and they were not allowed to have their mobile turned on. So – they sometimes stress you, particularly in the evenings and weekends, it is not good for the health.* (Family with teenagers).

Parents both call and use text messaging to check up on their children. Retrieving children in the evening also plays into the issues of security and control. Many parents do not want their children, even teenagers, to be out when it is dark, and instead choose to drive them.

> *Now in the wintertime, when it is dark and the weather is not good, we drive and pick her up at the centre. It is three kilometers. We don't like her walking in the dark* (parents of two).

Discussion - two types of time-use regimes

Very few of the respondents could imagine everyday life without the car. Most interviewees associated their dependence on the car on one or another aspect of time. Time pressure, shortness of time, time plans for alternative forms of travel, i.e. travelling via public transport or by bicycle taking too long is a common argument. And this is in line with the social perception of time and the 'structural stories' related to time. The notion that there is too little time in everyday life is a common one in many of these families. Considering the fact that time use studies show a reduction in working hours and an increase in time spent on leisure activities (Vaage, 2002) this might be seen as a paradox.

The necessity associated with use of the car is also often tied to the issues associated with children. Without the car there is not enough time according to the respondents. Families adjust their daily lives to the existence of the automobile. When the day-care centre and job are in different parts of the city it is difficult to use public transport. Some of the interviewees noted that while they could walk to work, delivering their children to day-care doubled the distance of their "commute."

The routine nature of daily life is the basis of habitual use of the car. Always having access to a car – and a routine use pattern – the threshold over to public transport is more difficult to overcome. Accessibility to a car means that the car is central to daily life, with use of alternatives becoming increasingly difficult. Many feel that it would not be possible to do without the car. Either the habit is so strong or issues of access are insurmountable and car use has already become entrenched.

The mobile telephone does not yet have the same central position that the car has in the organization of daily life in the family. Everyday life is possible without the mobile telephone. That said, the mobile telephone is important supporting technology in relation to fulfilling daily errands and in the social contact between parents and children and contact with other members of the social network.

However, unlike the car, none of the interviewees grew up with the mobile telephone. Many of them are in what domestication theory would describe as an "objectification/incorporation" phase, i.e. that they are in the process of learning how to use the mobile, determining what it will be used for and how it can be incorporated in their social lives. Domestication of the mobile telephone has not therefore come as far as domestication of the car.

As with the car, the mobile telephone is something that one becomes accustomed to. Availability is the most important aspect. Adherents of this group associate availability with security vis-à-vis children, i.e. the partner can be reached in the event that something happens during day-care or, in the case of the older children, when they are away from home. The mobile telephone also means that the children can reach their parents if they need to.

In the interaction between the car and the mobile telephone, there is no discussion about whether one will replace the other. These technologies complement each other and will perhaps mutually increase in use. One could say that while the car is an extension of the body and increases our physical range, the mobile telephone increases our range of overview. To some degree, the mobile telephone directs car use in the sense that it can generate more trips because there is not the same need to plan daily activities. More activities are carried out spontaneously and daily life is more ad hoc.

In the different families we can see different time-use arrangements tied to use of technologies such as the car and the mobile telephone. At one extreme there is the structured system, where all activities are planned – in both time and space – and all assignments are divided among the various members of the family. On the other hand, there are families where everything is done spontaneously, with very little planning apart from the fixed portions of life such as work and school. The structured and ad hoc systems are two extremes on a scale of many alternative solutions. Clearly, the families in this study represent positions between the extremes tending towards the ad hoc end of the spectrum. The reason that this is possible is precisely use of the car and the mobile telephone. It is perhaps "modern" not to plan, and instead to live ad hoc, which, with reservations for the small sample of the study, could lead to more transport rather than less. The car and the mobile telephone are devices that allow this type of organization. The car is a magic carpet that can take us over long distances in a short time. The mobile phone is a navigation tool that helps us determine the route.

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