

# Cooperative Design with Families Deliverable 1.1 • 2001-10-10



## **Cooperative Design with Families** Deliverable 1.1 • 2001-10-10

Michel Beaudouin-Lafon, Allison Druin, Åsa Harvard, Sinna Lindquist, Wendy Mackay, Catherine Plaisant, Yngve Sundblad, Bosse Westerlund

interLiving deliverable D1.1 Editor: Bosse Westerlund © interLiving

CID/NADA KTH SE-100 44 Stockholm Sweden interliving@nada.kth.se

http://interliving.kth.se

Cover and chapter illustrations are from the second Swedish family workshop, made by: Molly Bartling, p 1, 7, 13, 77, 81, 101. Photographs: interLiving family members and researchers. Type: Meta, Sabon Print: pdf version Stockholm 2001-10-10

ISSN 1650-8009 ISBN 91-7283-183-9

## Contents

D1.1: Cooperative Design with Families	
Design Philosophy7	
1.	Participatory design: families as design partners
2.	Research techniques: science and design10
Research Methods13	
1.	Families14
1.1	Recruiting Families14
1.2	Family Profiles
1.3	Motivations for participation26
2.	Activities
2.1	Interviews and observation29
2.2	Cultural Probes
2.3	Family Workshops51
3	Data Collection and Analysis72
Futu	re Work
References	
Appendix	
1.	Letters to the interested families82
2.	Probe binder containing Ethics statement
3.	Letter to the Swedish families after the second workshop $\ldots 94$
4.	Permisson to publish photos
5.	<ul> <li>CD-ROM</li></ul>

### **D1.1:** Cooperative Design with Families

This portion of the deliverables will discuss our co-design activities with families. We will begin by offering a short discussion of our design philosophy that has guided all that we have done in our approach to research. Our family design partners in Sweden and France will then be introduced (the actual names will not be disclosed for privacy reasons). Following this, our research activities in family homes and at our labs will be discussed. We will conclude by presenting some initial results from our data collection and suggest directions for the future.

# **Design Philosophy**



## Participatory design: families as design partners

"I'm going home to my family." Today, this simple sentence can mean so many different things. "Home" can mean anything from. In addition, the definition of "family" has come to mean anything from a traditional nuclear family with two parents and two children, to a more distributed family where parents may live in separate households, where children may travel between locations, or even where grandparents may be the primary care-givers. Today, due to changing social norms, going "home to my family" can mean almost anything.

We believe that partnering with technology users is an important way to understand what is needed in developing new technologies. This belief has been heavily influenced by research practices over the past 20 years: the *cooperative design* of Scandinavia (Bjerknes et al., 1987), Bødker, et al., 1987, Greenbaum and Kyng 1991), the *partici*patory design of the USA (Blomberg and Henderson 1990, Johnson et al. 1990, Greenbaum 1993, Schuler and Namioka 1993) and the consensus participation of England (Mumford and Henshall 1979). From brainstorming methods that ask users and designers to sketch out ideas, to interviewing methods that can capture user tasks, roles, and design ideas, innovative research methods have evolved to work with users. We have found that what seems to help in building a team partnership with many diverse ages, experiences, and goals is to quickly establish common objectives and participate in collaborative design activities as soon as possible. In other words, instead of talking about design methods with partners, having teams quickly begin doing them is one of the best steps to starting. As Greenbaum and Kyng (1991) have explained, "We see the need for users to become full partners in the cooperative system development process... Full participation of (users) requires training and active cooperation, not just token representation".

Building upon our long history of cooperative design, the InterLiving research team has begun to partner with families in Sweden and France to conduct research. These families embody the diversity that is common in today's family structures, from geographically distributed members, to co-located intergenerational members. In doing so, self-reported as well as observational data is being collected that will enable the development of situated emergent technologies that can bring families together despite the challenges of everyday life.

Our research team has a long history of partnering with users. Whether these partnerships are with professionals (e.g., UTOPIA: Bødker, et al., 1987, CPN, Beaudouin-Lafon et al., 2000, Caméléon, Mackay et al., 1998 ) or with children (e.g., KidStory: Druin, 1999; Benford, Bederson, et al., 2000), we believe cooperative design is critical throughout the design and development of all technologies. While existing methodologies have offered us an excellent beginning structure for our research with families, we have already had to adapt them to suit a team that includes participants young and old, with varying goals, life experience, and daily activities. Our approach to design attempts to capture the complexity and somewhat 'messy' real-life world of families. Many times there are not sequential tasks accomplished by one person, but many tasks done in parallel and in collaboration with others. Some activities don't even fit into the concept of "task". We see that a critical part of our research in the InterLiving project is to develop methods that can explore the worlds of families yet support co-equal partnerships in designing technologies for diverse family members. In the sections that follow in D1.1 our partnership activities will be described in further detail.

### 2.Research techniques: science and design

Working with families poses difficult methodology questions. Families are more difficult to observe than office or other workers and gathering information about them generates both practical and ethical issues. Not only must we be careful about which data is shared outside the family, but we must also be sensitive to confidentiality issues within the family. Our participatory approach also requires new strategies for enabling all members of the family, not just the most dominant, to actively participate in design activities. We face communication issues, not only across the multiple disciplines within our research groups, but also with the different members of the family. Finally, evaluating the success of this type of project is more difficult than with work-related projects that can establish measures of productivity or efficiency. We must determine not only how to measure success, but also what determines success.

We have chosen a multi-disciplinary approach that draws from both social sciences and design fields to guide us. This approach, called triangulation (Mackay & Fayard, 1997, Mackay, 1998), assumes that we will learn more if we experiment multiple methods to achieve the same goal. Note that scientific and design methods, which both have long, respected academic traditions, operate with fundamentally different assumptions about goals and methods. Scientific methods, social or otherwise, develop theories to describe pre-existing natural phenomena. The goal is to use objective measures (whether quantitative or qualitative) to test empirically the reliability and validity of these theories. Social scientific methods are particularly useful for gathering data about the families, both via observation and interviews. They are also useful for systematically evaluating aspects of the effectiveness of any technology that has been produced.

In contrast, design methods do not seek a single correct theory. Instead, they help us generate new ideas and explore the space of possible designs. They also provide strategies for selecting among complex design alternatives, using theory to articulate why particular solutions are more successful than others, for the particular design problem. Design methods are essential for any activity that requires the creation of innovative new technology. The interLiving project uses both scientific and design methods. In particular, we have conducted social scientific interviews with the families, and observed them in both home and workshop settings. We have also used several design methods, including cultural probes (Gaver, 1999) and video prototyping (Mackay et al., 2000).

We are also experimenting with new design methods, some of which blur the boundaries between design and scientific methods. In particular, we are exploring the concept of "technology probes", which share aspects of cultural probes and social scientific data gathering techniques. Technology probes evolved from the notion of "technology seeds" described in the interLiving proposal. Originally, we intended to develop simple technologies that would provide the families with ideas about what we'd like to develop. We expected them to critique the seed technologies and provide us with feedback that would affect our subsequent designs.

Technology probes are similar in that we are developing technology to be placed in the families' homes. However, the goal is different. Like cultural probes, we want them to be open-ended and to inspire new activities by the family members. A well-designed technology probe should be technically very simple and very flexible with respect to possible use. Once placed in the home, a successful technology probe should both encourage family members to experiment with it in ways we haven't considered and reflect aspects of how the family members interact with one another. Technology probes are instrumented, which will provide us with data both about the use of the probe itself and about the relationships within the family. Successful technology probes should be explicitly co-adaptive (Mackay, 1990): we should be able to see both how the families adapt to the new technology and how they adapt it in creative new ways, for their own purposes. Ideally, they will spark new ideas and comments from the family: however, they are also probes, not prototypes. Probes should not be early versions of the technologies we are seeking to develop, but rather a method of helping us determine which kinds of technologies would be interesting to pursue.

12 • interLiving • Cooperative Design with Families

# **Research Methods**



### 1. Families

This section introduces the Swedish and French interLiving families. We describe the recruiting process, provide family profiles and discuss their motivations for joining the project. For confidentiality reasons, we refer to families by color, rather than name. (Red, green and blue for Sweden, orange, yellow and violet for France.)

Since the French funds were delayed by three months, there was a corresponding delay in recruiting French families. Thus, the work reported here is more heavily weighted to the Swedish families. We expect to make up the lost time over the next six months. It should be noted that researchers from France and Maryland actively participated in the Swedish workshops and researchers from Sweden and Maryland actively participated in the French workshops. The two sets of activities, including home interviews, cultural probes, family workshops and technology probes have influenced each other, but we have decided not to try to make them identical.

#### **1.1 Recruiting Families**

The first task was to find three Swedish and three French families. We decided on a set of criteria to help us choose. For example, we wanted families with at least three generations, at least two of which lived in one household and at least one of which lived in a different household. We decided to explicitly exclude families that any members of the research team already knew, i.e. our own friends and relatives. We also wanted to ensure that we did not have previous knowledge or access to any information about the families other than what they revealed to us.

#### Sweden

In February 2001 we advertised in Metro, a free morning tabloid. It is available on all public transportation in Stockholm, and is said to have a circulation of approximately 500,000 people. The advertisement we created for InterLiving was small with basic information that included the need for at least three generations in the family and a three-year time commitment. (Figure 1).

A total of 43 people responded to the ad, most of them by phone, some by e-mail. They asked questions about the "rules" of their commitment and also explained why they were interested in participating. One person wondered if the project could be of any help in their family's lack of communication. One or two were interested because they worked with these kinds of matters themselves. Most of the people responding were curious and thought it just sounded like an interesting project.



*Figure 1. This ad was published in the swedish free tabloid Metro on the 20th Februari 2001.* 

#### **"Seeking Families**

InterLiving, a three year research project, is looking for families in Sweden and France with three generations. Together we will design and develop new technique for meeting and communication within the family. We want you to live in or near Stockholm.

If you are interested, contact ... "

We sent them each a letter (Appendix 1) by mail or e-mail with a more detailed description of the InterLiving project. We also explained that all the households included in the family must live reasonably near Stockholm to make it possible for us to provide the technology that needed to be installed in their homes later in the project. Those that still were interested after reading the letter were asked to fill in a form with names, ages and addresses of the people in the families willing to participate in the project. We gave them approximately a week to respond.

The grandfather of one family called us and wanted clarification on a few issues in our letter. He was interested but he did not speak English nor had he ever used a computer and he wanted to know if that was necessary. On the contrary, we thought that this was an advantage. And we also appreciated that one member of the older generation was that interested. As it turns out his family eventually became one of the families we selected.

We received nine responses from our letters to select our families. Two responded by phone and seven by mail. To narrow down the selection, our research group developed additional criteria that would guide us. We wanted our three families to differ as much as possible from each other concerning ages, computer habits and geographical location. In this way we would be able to cover many different aspects of families for our case study research.

When we examined our nine responses more closely, we realised that three had only two generations represented in the "family." In addition, one of them lived in the north of Sweden (somewhat more difficult with regards to travelling) and the person who represented this family on the phone seemed surprisingly negative in her attitude. Another problematic family was already involved in working with us at CID, something we had concerns about with regards to our research methods. And one family representative expressed some initial doubts and was not ready to make a decision when we called him on the phone. Therefore, we were able to eliminate these five families, leaving four to choose from.

As it happened, in one of the four families left, we discovered that the different households all lived in the same building. We thought that since it was easy for them to meet in person, it might be hard to develop any technology that could better support their communication patterns. That left the three families that became our design partners. These three families were labelled red, green, and blue, and were distributed in seven different households.

An interesting challenge in finding our design partners is in the fact that no "non-traditional" families (e.g. single parents, divorcees, gay couples, etc.) chose to participate. All of the families that applied to work with us were relatively "traditional" – a nuclear family with married parents, plus children and grandparents. In trying to understand why this self-selection occurred, we believe it may have to do with a number of factors. One of which may be time, less traditional families seem to have more time restrictions, particularly single-family households. We also believe this in part may have to do with how certain family structures perceive themselves as families. We realised that the headline in the ad may have given the impression that we in search of "traditional" families. We did receive a few telephone calls from people living in "non-traditional" families, but none of them returned the letter saying that they were interested. It should be noted that we are well aware that the families selected for our research partnership may not necessarily be the average Swedish families. Our choices among the pool of the families that applied were motivated by how appropriate these families were for design team work with our project and how open-minded they were about spending time together with their family members and us.

#### France

The Swedish families were successfully recruited with an ad in the free Stockholm subway newspaper. However, such a paper did not exist in Paris at the time we were recruiting families (May 2001), so we placed an ad in a national newspaper (Libération), which is one of the largest distribution daily papers in France (see figure 2). (Note: as of September 2001, Paris has an equivalent to the "Metro" newspaper, available for free to subway riders. We plan to use this as part of our strategy in year 3, when we recruit additional test families.) We ran the ad on Friday, Saturday, Monday and Tuesday to reach both weekday and weekend readers.

#### **Recherchons Familles**

Rech. familles de 3 générations min. habitant tt ou partie en IDF, pour projet de recherche européen. Ensemble, ns créerons des nvlles technologies pour la vie familiale. 01 69 15 66 25, interliving@lri.fr

#### Figure 2. The text of the ad placed in the French newspaper Libération

"Seeking families with 3 generations or more, living in the Paris area, for european research project. Together, we will create new technology for family life."

The French response was very different from that in Stockholm. We received very few calls and those who did call were highly suspicious of the project. (One person called, yelled "Internet nazi !" into the phone and hung up!)

Ultimately, we obtained one family from this method (the Orange family). They said later that they only followed up because they recognized the LRI lab in the email address and they already were familiar with the LRI lab at the University. Another family did express serious interest based on the ad. However, after several phone calls, it became apparent that the husband was enthusiastic about participating, but his wife was not. We visited their home for a preliminary interview, but the wife remained uncomfortable with the idea. After the visit, the husband called to tell us that they could not participate but that they would consider participating in the final test phase of the project.

In parallel with the ad, we crafted an announcement (Figure 3) which was disseminated through posters and emails. The posters were posted in public spaces such as music schools, hospitals. The emails were sent to friends of the team members. Those friends were asked to forward the announcement to other friends or neighbors who they thought might be interested. It was thought that providing an indirect personal connection to the project members (some sort of reference) would help families come forward and voice their potential interest.

We restricted our search to colleagues of colleagues, so ensure that none of the researchers knew the family members in advance. We found the Yellow family in the spring, but only recruited the Violet family in the early summer, after the family mentioned earlier dropped out. Since they were away for much of the summer and have a new baby born during the summer, they still have not been interviewed at home at the time of this writing. We expect to do this over the next week or two.

It is not clear yet why it was so much more difficult to recruit families in France than in Sweden. One possible explanation is that people in Sweden have a tradition of "participation" in general. It is not an

# interLiving

**Recherchons familles** 

InterLiving, un projet européen d'une durée de trois ans, recherche des familles de trois générations au moins, pour participer au **développement de nouvelles technologies facilitant la communication** et les activités communes au sein de familles dispersées. Les familles peuvent habiter ensemble ou sous plusieurs toîts, et doivent résider en Ile de France.

Le but du projet est de permettre à plusieurs générations d'une famille de vivre ensemble même si elles n'habitent pas ensemble. Tous les membres de la famille, jeunes et moins jeunes, auront l'occasion d'influencer le déroulement et les résultats du projet.

Cette coopération entre les chercheurs et les familles prendra plusieurs formes. Par exemple, nous collecterons des informations sur votre mode de vie en vous interviewant ou en vous donnant un appareil photo pour prendre en photo les objets, personnes ou lieux importants de votre vie. Nous organiserons également des ateliers d'une demi-journée à une journée où les chercheurs et les familles travailleront ensemble à développer des idées. Enfin nous construirons des prototypes que vous pourrez tester chez vous.

Les partenaires du projet sont l'INRIA et l'Université Paris-Sud en France, le Royal Institute of Technology de Stockholm en Suède et l'Université de Maryland aux Etats-Unis. Le projet est financé par le programme "Ordinateur Invisible" de la communauté européenne.

Pour plus d'information et pour faire acte de candidature :

Paul Ladevèze tél o1 69 15 66 25 courrier électronique interliving@lri.fr http://www-ihm.lri.fr/interliving InterLiving c/o Michel Beaudouin-Lafon Laboratoire de Recherche en Informatique Bâtiment 490 Université Paris-Sud 91405 Orsay Cedex



Laboratoire de Recherche en Informatique Bâtiment 490 Université Paris-Sud 91405 Orsay



Institut National de Recherche en Informatique et en Automatique Domaine de Voluceau - Rocquencourt, B.P. 105 78153 Le Chesnay Cedex, France accident that participatory design (called co-operative design in Scandinavia) comes from there. Another possible explanation is that the wording of the ad and the choice of newspaper did not reach the right target. Since the strategy of indirectly recruiting families through colleagues and friends was the most effective, we will use it in year 3 when we recruit new families, in parallel with an ad in the equivalent to the "Metro" newspaper that now exists in Paris.

*Figure 3. (Opposite page) The text used in email and posters to disseminate the announcement.* 

InterLiving, a three-year european project, is seeking families with three generations at least, to participate in the development of new technologies that facilitate communication and shared activities for distributed families. The families may live together or in separate households, and must reside in the Paris area.

The goal of the project is to allow several generations in a family to live together even though they do not share the same home. All members of the family, including children and senior people, will have the opportunity to influence the project.

This cooperation between researchers and families will takes multiple forms. For example, we will collect information about your lifestyle by interviewing you or by giving you a camera and asking you to take pictures of objects, people or locations that are important to you. We will also organize half-day or full-day workshops were researchers and families will work together to develop new ideas. Finally we will build prototypes that you will test in you own houses.

The partners of the project are INRIA, Université Paris-Sud in France, the Royal Institute of Technology in Sweden and University of Maryland in the US. The project is funded by the European Union "Disappearing Computer" programme.

#### **1.2 Family Profiles**

We interviewed each of the families in each country and asked for background information. We also determined the size and scope of the families, including number of households and numbers of people in each.

#### Sweden: Red Family

The red family contains three households: two in the greater Stockholm area and one in Örebro (2 hours by car from Stockholm). The household containing the grandparents did not participate until our first home visit at the nuclear family. They were visiting there and got interested. From then on we had a total of eight households participating in Sweden. The nuclear family and the grandparents live in a community in southern Stockholm. Their houses lie walking distance from each other although there is a lot of traffic on the road so the children don't even bike there. The oldest daughter studies in Örebro and lives there during semester periods.

#### The red nuclear household

#### Boy (10), Girl (14), Girl (16), Woman, Man

They live together in a house close to the archipelago. From the top of a rock in their garden you see the water down below. Steam engine passenger boats stop at a quay during the summer season. The first time we visited them in their home, the man showed us this and said, "Aren't we fortunate?" He is very proud of his house and its surroundings. They have another house in their garden, which they rent to friends.

According the their oldest daughter, the mother has been working in the home for 18 years and is now working with information at a government organisation. The father runs his own company and works what seems to be a great deal.

They have two computers at home and the parents use computers at work.

#### The red grandparent's household

#### Woman (mother of the nuclear households father), Man

They live in a house that they moved to fairly recently. They had been living out in the archipelago for many years, but found that the travelling to and from work in Stockholm city was too difficult. They also wanted to stay closer to the children and grandchildren, so they moved and are now living close to the nuclear family. The grandson visits the grandmother every Friday after school.

They have a computer at home and both use computers at work.

#### The red daughter's household:

She lives by herself in a small student flat in Örebro. Örebro is a town about two hours from Stockholm. She is studying media and communication at the University of Örebro. Her boyfriend is studying too. He had been living in a town in the south of Sweden, but is now living in Stockholm. He will probably continue his studies in another town in southern Sweden. They try to see each other as much as possible, so there has been a lot of travelling.

#### **Sweden: Green Family**

The green family contains three households: two in the greater Stockholm area and one in the city. The grandparents are participating together with their two daughters households. They live about three quarters of an hour drive from each other.

#### The green nuclear household

Boy (9 months), Girl (2 1/2), Woman (daughter of the participating grandparents), Man

They live in a newly built house that may have been designed by an architect. It is situated in one of the closer suburbs of greater Stockholm. Their house is sparsely and consciously furnished. It seems that both the parents think that the appearance of the house is important.

The parents work within walking distance of their home. When the project started, the mother was at home with the youngest child.

Computers are not used a great deal by this household. They do their bills and occasional e-mailing with a computer that they got from the mother's mother when she bought a new one.

*Figure 4. "Our son has been playing with the dustpan. He is quick." Green nuclear household.* 





Figure 5. "This is so nice that it qualifies for a photo." Blue grandparents.

#### The green grandparent's household:

#### Woman, Man

Their house was built around the 16th century and lies on the shore of Lake Mälaren, a half hours ride by car from Stockholm. It is nicely renovated indoors and has a beautiful yard with a boat landing.

They are both involved in several volunteer organizations in addition to working. The grandmother gets together with one of her grandchildren every Monday.

They use several means of communication at home: e-mail, fax, paper letters and of course all kinds of phones.

#### The green daughter's household:

#### Woman (daughter of the participating grandparents), Man

They live in flat in the middle of Stockholm. It's a small flat and contains a small bedroom, a living room and a small kitchen. All rooms are connected with a small hallway. The flat is on the ground floor and is quite dark inside. When we came for the first visit, the man showed us the whole apartment. While we were still in the hall and with a little irony in his voice he said: "And here you see the bedroom with the workspace, and there's the kitchen and to the right there is the combined living room, lounge and dinner place." The workspace was a computer on a bedside table. The woman told us that they could hardly eat breakfast at the same time in the kitchen. It's too small.

They had not lived together for very long when they joined the project, and are both interested in and also very attentive to each other's behaviour concerning communication. Both their comments in the interviews and in their diary are very personal. While they are talking to us there is somehow this feeling of trying to come to an agreement, or at least a statement, in every matter.

#### Sweden: Blue Family

The blue family contains two households. The nuclear household lives an hour drive from the centre of Stockholm. The fathers' parents, the participating grandparents, live in a suburb about 20 minutes from the centre.

#### The blue nuclear household

*Boy (10), Boy (11), Boy (15), Woman, Man (son of the participating grandparents), Dog* 

They live in a house about an hour drive by car from the center of town. The area has several streets with many houses and is surrounded by woods. The children go by bike to school.

Everyone in the family has lots of activities. All the boys and the father are involved in sports and play football.

Both parents work in the centre of Stockholm and go by car together. In the morning the parents call the children with a mobile phone from the car to wake them up. The three boys make breakfast, dress and go to school on their own. The boys have to keep track of what days they have gymnastics and remember to bring clothes for that.

The family has trouble handling the amount of information that comes from the three boys' school classes and their sports activities. The boys often bring home notes about changes of training times, parent meetings, etc.

They often meet the father's parents, who also are participating in the project, as well as with other relatives.

They have a computer at home, which is used quite a lot by the children. The parents also use computers at work.

#### The blue grandparent's household

#### Woman, Man, Dog

The grandparents live in house in a southern suburb of Stockholm. Public transportation to Stockholm city is the subway, and to the south where the children and grandchildren live, there are intercity trains. The surroundings of their house are varied. There are small "forests" with walking paths and single-family houses mixed with blocks of flats. They built their house in the 1960's and have lived there ever since. They would like to redecorate some of the rooms, but they like their home very much. It's cosy; big couches in many rooms, even in the kitchen. There are a lot of natural materials like wood and leather and fabric in dark colors. Only the room with the big dinner table has another expression. It's light and white but at the same time more formal and is used only on bigger family occasions.

They have a lot of photos of their children and grandchildren hanging on the wall and standing on shelves. They tell us that they have seen the times changing and that life is harder nowadays. "You can't let your children play in the forest without telling them to look out for strange men."

They have a summerhouse in Sandhamn, in the Stockholm archipelago, where they stay as much as they can. They "move out" in spring and "move back" in the autumn. They only go into town if they really need to. One week every summer they have all their grandchildren staying there, with no parents. The requirement for the 8 grandchildren to go there is that they need to be old enough to tell if "it hurts anywhere". Every year for a Christmas present, the grandmother makes a book for each grandchild with photos and other things collected from what they did during this very special week.

They have never used a computer or seen the Internet.

#### France: Orange Family

The nuclear family consists of two parents and two 8-year old twin boys and a large number of family members on each side. The father is in computer science project management and the mother is an "assistante maternelle", who takes care of small children.

They live in a southern suburb of Paris. A busy but very organized family. The children seem very quiet. The father is very involved in running a rugby club in which the children participate. The mother takes care of several small children in her home during the day. They all use technologies like portable phones and computers on a regular basis. They often shop groceries on the Internet, and so do other members of their family. This is not common in France. A large house requires the mom to use the interphone often to talk to the twins in their rooms.

The mother has several siblings:

- one sister is in mental hospital.
- an older sister lives with husband and 2 sons (currently students) in a south east suburb of Paris.
- a sister lives with her husband and a daughter, about 3 or 4 hours away by train. They use the Internet regularly.
- a brother lives near Paris with his wife and 2 small children (5 and 2). The sister in law has a brother who lives in the US, and would probably be very motivated to participate.

Both of her parents live in a Paris suburb. The grandfather has Alzheimer's disease and the grandmother was diagnosed with cancer, so health issues are important.

The father has three sisters:

- a sister near Paris with her husband they uses the internet.
- a sister near Paris.
- a sister with a daughter.

The father's mother lives alone, about 6 hours away by train in the south of France. The grandfather is deceased.

#### France: Yellow Family

The nuclear family consists of two parents and two teenage children, a boy of 10 and a girl of 14. The father is a human resources manager and the mother works in the loan management business. They are a closeknit family who live in a northern, middle-class suburb of Paris. They have a number of relatives who live near by and visit often. The grandparents on both sides are alive, as well as one great grandparent.

The parents also have common childhood friends who visit often. Both parents use computers at work but not intensively. This is an active family who loves sport and the outdoors. They all seem to get along very well together. In discussions parents mentioned some "normal" conflicts with the teenage girl, but we could not see any evidence of it. The girl spends a lot of time sending emails and on her portable taking to friends, or sending short written messages.

The mother has a brother who lives near Paris, with two children who are very close in age to hers (10 and 15). They visit often, with weekend barbeques and get-togethers and the cousins are friends. She has another brother who lives 20 km away and is married but with no children. The mother's mother lives alone, about 5 km away. Her father lives 4-5 hours away and only visits on long weekends. They keep in touch by phone.

The father has one sister who lives very close by (4 km), who is married with one child. They visit often, during the week as well as on weekends. Both of his parents live in a house a couple of blocks away. However, they are only home for about eight months of the year and spend the remaining time travelling.

#### **France: Violet Family**

The nuclear family consists of two parents, a new-born baby (born in August) and a 9-year old daughter. Their nieces (early 20's) is moving to Paris this fall. They live almost 100 km north-west of Paris.

Both parents are professional musicians and describe themselves as "non-technical".

The new baby was born on the day we had originally scheduled for a home interview, so we postponed the home visit. They were also unable to participate in the first workshop, so we plan to have a "catchup" session with them in September.

#### 1.3 Motivations for participation

This section describes the reasons the families gave for participating in the project.

#### Sweden: Red Family

It was the mother who contacted us. She had read the ad in the paper. She then asked the rest of her family if they wanted to participate. She had also contacted her brother who lives in Paris with his wife and child. We got their address and telephone number and tried to reach them to start up the contact, but failed.

The mother is the one who is the most interested in new technology, so she started putting up a computer network in their house and to their friend's house, as well. But the rest of the family were a bit upset about all the wires everywhere, so they attempted to hide the wires in the new ventilation system.

The oldest daughter described their participation like this, "I'm glad that my mother is so interested in this and that my father has taken time to be part of the project too." She said that she didn't get much information about participation in InterLiving from her mother. That's one of the articulated communication problems in her family, she said. When someone within the family says something, or if someone outside the family says something to the family, everyone takes for granted that then everybody else knows, which is usually wrong.

The mother expressed concerns about not being able to meet or hear from her mother and her brother enough. Her mother lives in the northern part of Stockholm and her brother lives in Paris.

According to the mother, the daughter was informed about the InterLiving project and wanted to participate. Unfortunately, the daughter was not able to meet us and attend at the first family workshop and she was not in Stockholm when we made our first visits at her parent's house. We tried to reach her by e-mail, telephone and mobile phone to arrange for an appointment at her apartment. But she was difficult to catch. Eventually, we got hold of her on her mobile, while she was with friends. She said she didn't know much about the project and that it was no use for us to visit her at Örebro, since her apartment was supposed to be renovated. We tried to arrange for her to visit us at CID but she cancelled the first appointment the same day.

However, she did attend the family workshop in early summer. She also contributed her "home" work photos with comments and we decided to meet for a short interview some time after the summer. She was interested in what this project was since she is studying media and communication at the University of Örebro.

#### Sweden: Green Family

The father in the nuclear family saw the ad. Normally he walks to work, but the morning when we advertised he went on the subway and took a paper. He found the project interesting and phoned to ask more about it. He also checked with his wife, father- and mother-in-law to see if they would be interested as well. The older generation had concerns about how much time they had to spend in the project, and asked specifically about that before they accepted.

He also asked if his sister-in-law and her boyfriend were interested in participating. And they were. Everybody in this family has a lot of commitments but also think that close communication with each other is of great importance.

#### Sweden: Blue Family

The mother in the nuclear family saw the ad when she was on her way to work in the morning. She often finds similar ads interesting, but doesn't take any further contact. But as she put it: "You can always try." So since this was on her way to work and nothing came between, she rang as quickly as she got to work and talked to one of us. The weekend after they got the information sent to them, the father's parents were visiting and looked at the papers and found them interesting. They were a little worried though since they never had used computers. But after phoning us, they found out that we thought that this actually was good for the project, and agreed to cooperate.

A few days after the initial call from the mother, the grandfather called and wondered what the project was about and also if it was necessary to know about computers. He told her that he had been working all his life and did well without computers, and so did his wife. They didn't know much about computers at all. This was something that both he and his wife would come back to several times during workshops and interviews. They wanted to participate because their children had asked them. "Of course you do things like this when they ask you." It's nice to do things together as a family, and the project seemed fun.

#### France: Orange Family

The orange family was the only recruited by the ad in Libération. They explained that they have enjoyed participating in industrial focus groups and they were interested in trying this. They see this project as an opportunity to spend time with their children.

#### France: Yellow Family

The yellow family was recruited via a recommendation by a colleague at LRI. The father is clearly interested in new technology. At the initial home interview, the father indicated that he felt this would be a good educational experience for the children. It was also viewed as an enjoyable way for the family to spend time together.

This is a close-knit family, with frequent visits to the other family households. They like to stay in touch and seem interested in the communication aspect of the project. At our visit, the family showed us their home, including the basement and climbing up a ladder to see the attic, which is being refurbished as a study. (Note: Showing the house in this way is somewhat unusual for a French family.) The family, the father in particular, are actively fixing up their house and enjoy "bricolage". One of the issues they raised was the problem of communicating with each other over three stories.

#### **France: Violet Family**

The violet family was recruited via a recommendation of a colleague at LRI. They describe themselves as completely non-technical: they are both professional musicians. However, they were intrigued by the creative design aspects of the project and were interested in trying something new.

## 2. Activities

This section describes our data gathering and design activities with the familes, including interviews, observations, workshops and "home" work by the families.

#### 2.1 Interviews and observation

#### Sweden

We made two visits to almost all of the households. The first one was an informal follow-up visit soon after the first family workshop, held in March 2001. The families had the opportunity to ask us questions. We also checked that they had understood what to do with the probes we gave them at the first workshop (see page 41). We were also able to observe them and their homes to understand more about the photos we would later receive. The second visit took place after we had received the probe materials back from the families. We had studied the information and reflected upon the similarities and differences. This resulted in a set of questions that we thought would be interesting to ask all the households. The interview was semi-structured and we let the people have time to think and talk about things that were interesting to them.

We wanted to know their reasons behind wanting to participate in the InterLiving project, and also their thoughts thus far about the project.

We wanted them to discuss their communication needs, and consider if they were missing any opportunities. Did they experience any situations as stressful? We wanted them to elaborate on their relationships between formal and informal communication.

For the visits, we decided that we should bring treats, like fruit or sweets, and that we should not have dinner together. We had several reasons for this decision. One was that it takes a long time to finish a dinner compared to just having a cup of coffee and a cookie, and we wanted to focus on the interview and observation. Another reason was that we didn't know the families well enough yet for them to feel comfortable having us for dinner.

#### France

We visited the households of the nuclear families. (However, one of the families dropped out and we are just about to interview the replacement family.) Unlike the Swedish families, which began with a short, introductory visit and then followed up with a longer, more detailed visit, we combined the two.

At the beginning of each home interview, we introduced ourselves and explained the purpose of the interLiving project. We also explained that the project would include French and Swedish families and we explained our research methods. We also explained our approach to ethical and confidentiality issues. We asked each family to sign a document entitled "Accord de confidentialité". (See appendix 2 for the English translation of French and Swedish versions.)

We were particularly concerned that the families understood that we took these issues seriously and that we realized that some information is open within a family but confidential outside, and other information is confidential within the family.

We asked family members for background information (professions, ages, leisure activies). We then asked them to describe how and whom they communicate within their families.

#### Interview with red nuclear household

During the interviews in their homes, the youngest daughter was present once and the son twice. They did not particularly take part in the discussions, except when talking about who is interested in getting in contact with whom. Of course the parents wanted to know where the daughters were in the evening, and of course the daughters don't want to be reached all the time. But with a mobile phone there is always a possibility for the daughters to call their parents and tell them where they are and what they are doing. The son is still too young to have any comments on the matter. He didn't say much at all.

At our first visit at their house we talked about what the InterLiving project was about and what the result after three years would be. The husband/man suggested that it perhaps could be a blanket over the TV set? His arguments was that the family would actually talk more and be together more if the TV didn't distract all the time. He thinks it would be nice to have something that indicates that the older generation is doing ok. Perhaps something where they could hear when her old father is playing the piano. Then they would know that he is ok. Perhaps they could play together with him on their piano? Four handed on distance?

The woman tells us that cords are so primitive. She tells us that twice. I try to argue that the wires is an easy way of knowing that the technical devices are connected, that they are on, but she didn't think that was necessary. They are just primitive and ugly and in the way.

The youngest daughter, 14 years old, pays her own telephone bill. The mother finds it difficult to understand that it can be worth 500 SEK (Swedish currency) to talk to your friends on your mobile phone, when there is an ordinary one at home. But it is the mobile one that the daughter uses the most. It is mostly the kids that send SMS messages. It's mostly pictures and ring signals they send to each other. We wondered if any of them had more then one phone, but since it's possible to have more than one ring signal, you don't have to. The husband tells us that he uses one signal to know when its family and one if its work. His wife looked a bit surprised when he said that. She probably didn't know. He argues that you make different impression on people with different signals. People who use "nubbevisor" (drinking songs) as a signal really stand out as people that you can't do business with.

The husband tells us that it's his wife that did all the comments in the probe diary. She writes quite a lot and the husband says that she is talented. He is more like a speaker and finds it difficult to make subtle distinctions in writing. He thinks that the new generation will be a writing generation. The wife says that if it's possible to chose she prefers to e-mail instead of using the phone. They both think it's a bit sad that you never write letters nowadays. They don't even write Christmas cards anymore. The make phone calls instead.

Almost all the writing in the diary was about how many mobile phone calls the family had made. They all use their mobile phones a lot, even the wife. But at the same time she is the one that pronounce that: "It is not everybody's right to reach me all the time!" She is very clear about that. The husband uses it a lot in his work. He can't be without it.

The family puts notes on the fridge and on the breakfast table. But if it's urgent that you reach a person within the family with a message, you put the note on the toilet seat. They have come to this solutio after using the floor in the hall for leaving notes on, but the notes could easily be hidden under clothes or just stepped over. They find the toilet seat

the ultimate place. Everyone has to go there and the note is not stuck to it so you have to lift it up or it will fall on the floor. Besides, you have time to read it while you're "at it".

About home technology the woman doesn't think it's important that it looks "technical". Before it was important to show off that you could afford big speakers and an expensive Hi-fi. You showed who you were or who you wanted to be with those things. Today it's not that important. If it could be hidden, the home would look much nicer.



Figure 6. "Communication: The safest place = note on the toilet seat."

#### Interview with red grandparents

Since the grandparents joined the project after the first meeting, we were only able to visit them once in their home. They haven't lived in their house for very long. They showed us the photos they had taken of their home. They thought it was difficult to show us something ugly in their home because they had not brought anything ugly with them when they moved in. But, they said that the computer wasn't very nice. Both of them used computers in their work, and saw the benefits of them. The grandmother had many thoughts about how computers and systems are procured in work places and about the people who have the authority to do so. The grandfather is a Hemingway fan and uses the computer to search for and to order Hemingway information and texts.

One of the reasons they moved was to be closer to the grandchildren. The grandmother thinks that there is not much time to be together nowadays. The grandchildren (and the children) have so many things to attend to all the time. She's got time, even though she gets tired more quickly these days. She thinks the grandchildren speak a lot on the telephone, or rather mobile phone. They even sleep with them in bed. They are both fascinated by the grandchildren's extreme amount of talking on the phone, but realise that it's a big part of children's lives nowadays.

The grandchildren visit them quite often. The grandparents have cable-TV, but not the nuclear family, so this makes them visit even more often, especially during international ice-hockey tournaments. The youngest grandchild, the boy 10 years of age, often stays at their house to watch ice hockey during night hours.

#### Interview with red daughter

It was difficult visiting the oldest daughter in her apartment, because they were renovating parts of it during the spring and then she was moving back to Stockholm for the holiday. The interview had to be held instead at CID at the Royal Institute of Technology.

When we were looking at the probe photos she took in her apartment she said, somewhat proudly, "People that come here often say they think it's cosy." She said that she didn't like everything in her home, referring to a photo with a leather sofa. Many of her friends say that the sofa is "retro" so she has accepted it as quite cool. (Figure 7)

All family members have their own mobile phone. The oldest daughter tells us that the rest of the family didn't even bother to learn the telephone number to her apartment. "If they want to reach me they call my mobile." Since she is living alone, there is no one answering when she is not at home. Not an astonishing conclusion, but still quite important. People don't want to reach the flat, but her. She tells us that when people try to reach her at her mobile phone, and she is at home, they hang up and call her on her "ordinary" telephone. The reason to use that one instead of the mobile one is that it is cheaper.

She is showing her own mobile phone. She has got a Nokia. Not the most recent one, but not a very old either. She commented on that it was quite old, but it did work and has the functions she need. She doesn't need to "WAP" for example. She will rather wait to buy a new one until the wap mobile phones just costs one crown, or if her brakes. To change mobile phone cover is for teenagers, she tells me. She has friends that do it, but it's more of a thing for her youngest sister and brother.

We continued talking about technical devices and expression. She said that a laptop can be nice or smart looking. It's a matter of credibility. She thinks that iMacs and iBooks look like toys and does not give you the right feeling. It is important how a Hi-fi looks, because it is to be seen in your home. She's laughing when she is describing how it will be like when she and her boyfriend will move into the same flat together. He will decide what brand on the TV set and she will care about what sofa to buy. Though she didn't want to categorize, she said it had to do with boys and girls. Boys and technique and girls and decorating the home! "My boyfriend is a bit worried about all the pink stuff I will bring into the apartment", she says with a smile.

We are talking about a photo where her clothes are shown. She says that clothes are an important part of her and that she don't mind them hanging in the hall and in other places in her small apartment. "I'm not the type of person that keeps clothes for very long". Some people might find it messy, but she likes it. I make the comparison with other people that might have records or books in the same way she has got clothes, and she agrees. She likes clothes and accessories.

She has a lot of photos of friends and family in her apartment. They are important for her to feel a little bit more at home. Other things/are also important for her, like the old clock for example. Her mother's stepfather was a clockmaker.

She always bring her mobile phone everywhere and she never turns it off, except during lectures. "You can always tell by the telephone number who is calling. If you don't want to answer, you don't have to. It might not be very polite, but it doesn't happen that often". She does not send SMS messages often. Some small greetings, that's all. If you for example have to turn an invitation down, it can come in handy to use SMS. But at the same time she think it's a bit unpolite to use SMS and that you need to talk to people to continue a friendship. She tells me that it is a bit childish to sent a lot of SMSs.

We discuss different old and new techniques. She likes receiving letters and she also writes postcards and thank you notes once in a while. There is another feeling in a letter than in an e-mail for example. She Figure 7. "The leather sofa from the 80's does actually feel retro-right."

doesn't want a digital camera, because she wants to sense the physical photo.

She thinks there are communication problems in her family. If someone from outside the family invites the whole family to a party for example, the person calling think that he or she actually had invited the whole family. But the message was just brought to one person, and did not necessary pass it on. That has happened many times.



Research Methods • 33

"My father just called me the other day and wondered if he should visit me in my flat in Örebro, because he was passing by in his car. I had to tell him that I had not moved there for the semester yet. He actually didn't know that I still lived in Stockholm".

She said she would like something like a place where all family members, and perhaps others, could put in information for all the family to read. It didn't have to be very advanced. Her mother had tried to make everybody to use group-SMS messages, but apparently it didn't work.

#### Interview with green nuclear household

The visit took place in the evening after the two young children had eaten but before their bedtime. They live in a newly built house in an area under development. This area previously had mostly summerhouses and some are still left. The green family's house has an open plan with high ceiling. The windows are rather large, some go all the way from ceiling to the floor and not all are right angled.

The interior is sparsely and consciously assembled. A pair of old Malmsten chairs that they were making new seats for were in the living room area. There was a big old leather sofa. The lamps are a functionalistic style. There are no curtains except in the bathroom.

When the husband showed us around he joked and said that they were sort of exhibitionists. Everything in the house seems to have its carefully chosen place in a way that they together will give the whole house a homogenous feeling.

The carpet in the kitchen is torn away and the bare concrete is visible. There is also a big fan with a huge hose. They have had a water leak and the floor needs to dry up. During our stay they shut off the fan, which has a disturbing sound. This got us talking about the sound aspects of new technology. If technology is noisy it can certainly be disturbing as you use it. They also talked about feelings of uncertainty

> that you can have with technology; you don't always know if it works or not. The mother recalled having trouble sending e-mail on their slightly older computer that they have inherited from her own mother. She doesn't know if she is doing something wrong or if the computer simply doesn't work.

> Earlier they did not use the room that they intended to use for working in because they didn't feel comfortable there. But after repainting the walls from green to white they use the room. The woman says that it has to be fun when you do the bills. The conversation continued with the importance of color and form. "You want the things in your home to fit in," she said. That also goes for technology, but there you don't have so much to choose from. One TV looks like all other TV sets.

Figure 8. "Nice beautiful corner (when the cupboard is closed and the picture is gone."



We finished discussing what the InterLiving project was about. They said that it was a little unclear what we are going to end up doing. We could only answer that we don't know that either. But that we have a unique opportunity to develop new technology and take all aspects into consideration right from the start. The man in the household talked most. The woman had taken most of the probe photos and made most of the notes.

#### Interview with green grandparents

It was a nice warm spring evening when we visited their home for the interview so we decided to sit outside in their garden. It is very nicely located on the countryside on an island directly on the shore of the Lake Mälaren. There were a lot of birds singing and as a result, it is sometimes difficult to hear the interview on the videotape.

The interview started with only the woman because the man was late coming home from work. He had phoned and said that he was late. The woman told us that after joining the project they had been thinking more consciously about everyday communication. She tells us an episode when her husband was going shopping for food and had a list that she had written. He called several times from the shop asking if she had meant yellow or red onion and how many of this and that. All in all they had called each other four times, and had started laughing when they realized that.

The husband eventually arrived home. They seem very coordinated, which is no surprise after many years together.

We discussed some parts of the probe diary that they had sent us. The man had written that he wanted to reach his wife directly, not an answering machine. Her daughters have made similar remarks. The woman said that this was not her problem. She says that it is important to have time for herself, so she can't be available all the time. She always has her mobile shut off in the subway. She actually only has her mobile phone switched on when she is in the car.

They say that they think it is important to give the situation around eating a lot of time in order to reach a deep conversation. It is important to get somewhere during the talk. This is easy to do for example on Friday evenings when nobody calls.

A ringing phone really calls for attention. It is very intrusive, and it can be difficult not answering. The woman said she can leave the phone ringing, but if she answers, she will go on talking with the one calling. The man on the other hand always answers but has no problem with asking the person to call later because he is eating and doesn't want to be disturbed.

We talked about the problem of not knowing if you are disturbing somebody when you call; you have no idea of the context on the other side. And you can't even know if the one answering is telling the truth saying that it's OK to talk. The woman argued that you don't have to have control over everything, and that people should take responsibility for whether or not they can be disturbed, like she does herself.

Both are very active and involved in different kinds of volunteer work. Some of it involves contacts and travels to a European country. In those contacts they use fax, ordinary mail, telephone and e-mail since computers are not so common in that country.

The man described an idea for "something" that simply captures the words that you want to communicate. You can speak out loud as you are peeling potatoes or driving the car. The thing converts it to text and shows the message to the other person. "If I raise a couple of fingers, like this, the machine knows it's for my older daughter."

This is an ideal way that technology could work, just making it easier for you.

We continued to talk about the idea that different kinds of messages need different media. The woman noted: "You can't answer sad news with anything else than a letter. It simply needs the care." She described a letter from a dear but distant friend who wrote to say she had divorced. She could of course not answer in any other way but a handwritten letter. But writing such a letter demands a moment of thought and stillness. She said it is a pity that we seem to loose some dimensions when we say that we don't have time. She wonders if we really have to go quicker.

We also talked about the appearance of technology artefacts. The woman, although she seldom talks in her mobile, replaces it rather often. It is important that it is good looking and it is nice to have it in her handbag. She lifted up their portable phone, which lies on a table, and said that it's not nice at all because of its indistinct and roundish forms. She also thought that well designed technique was sensual, like Bang & Olufsen, the iBook and the iMac. This revealed the PC-Mac conflict within the family.

#### Interview with green daughters household

At the first meeting at the green daughter and her boyfriend's household, her older sister and her two children, a girl of 2 years and a boy of 10 months, were there too. It was a bit crowded. We were talking a lot about family relations and somewhat about research ethics, in particular their privacy as participants of a research project and also that the project is funded by the EU and that they should be aware that this is tax money.

The boyfriend had comments about communication. "I communicate all day, so when I come home I'm tired and couldn't bother to pick the phone up and gab with my mother." He says it with a friendly loving voice. From what we understand, he didn't think it was boring talking to his mother. He was just too tired and maybe she talked too much. He thinks it's sad that we don't write any letters nowadays. It's nice to receive letters and love letters won't do in an e-mail or SMS
message. A letter takes time to write, and it's the time you think you never have enough of.

We also talked about the fact that we call each other for different reasons. Sometimes just to say hello, or I love you or confirm a meeting. Different reasons give different contexts. There are also differences in how you can talk on the phone in different work places. At the green daughter's work, a school for disabled children, it



is only possible to talk on the phone during breaks. She doesn't make many calls because of that. The boyfriend calls whenever he has some spare moments. He also receives private phone calls when he's got the time. But the two sisters call and send SMS messages a lot to each other. The green daughter says that she even received a SMS message from her father, something that he usually doesn't do.

The sister said how obvious it was that we had not asked for their professions when we started the project. We had just asked about their age and where they lived and their family relations. To her, it felt as if we had done that on purpose. We told her that our interest was in the relations and that the professions weren't that important.

The couple had not lived together for very long when we visited them for the first time. Just about a month or so. They, along with the sister, started a discussion about what is nice and what is ugly in a home. This may be an on-going discussion in their household, to come to an agreement on what to put where in the flat. The green daughter thought that five vases in different colours were very nice on a bookshelf. She had got them from her family. The boyfriend didn't like them at all. (Figure 9). He liked a picture of a bird, made in wool and fabric. He had got that from friends in Australia. The two sisters just laughed and thought it was disgraceful. After a bit of discussion, they came to an agreement that it's ok to like things just because they remind you of others. The older sister was fed up with posters in frames on the wall, just because they usually don't refer to anything.

## Interview with blue nuclear family

This family lives in a house about an hours drive by car from the center of town. The area is surrounded by woods and has several streets with houses. Everyone in the family seems to have a great many activities.

The family has trouble handling all the various bits of information from the three boys' school classes and their sports training. The boys often get notes about changes of training times, parent meetings, etc. They leave the notes "all over the place." Sometimes they are left on tables in the hall or living room and sometimes in other places. When Figure 9. "Nice (her opinion) Ugly (his opinion) vases." the parents take care of the bills it often happens that they find notes from school among the bills.

Both parents work in the centre of Stockholm and go by car together. In the morning the parents call the children with a mobile phone from the car to wake them up. The three boys make breakfast, dress and go to school on their own. The boys have to keep track of what days they have gymnastics and remember to bring clothes for that. The parents aren't home until around 6 o'clock so the boys have to do their homework by themselves.

The parents have identified that they have problems with calendars. They have a big one on the refrigerator door. And it has all kinds of notes on the side with additional information. The father said, "Rather often there is no information on the common calendar about important events. In your personal calendar you write your own appointments, at the most, but often we forget to check and pass on information to the others at home."

Parent meetings at the school are things that don't come regularly. That is one of the things that is really difficult to remember. Also when the kids, for example, are going to swim at school. They perhaps don't remember it until the morning, but then they don't have the time to find their swim suits.

The father had an idea for an ideal calendar. When the kids come home from school they should only have to hold up the note to the calendar, or put it into some slot and it would be scanned in and connected directly to the appropriate date. It should also be broadcasted to the grandparents. This way the grandparents would know when their grandsons have a football game and can go there and watch if they want to.

When elaborating more on this connection to the grandparents, the father thought that the boys needed help both with their homework and with getting answers to the weird questions that they often have. The father suggested a direct video link between the two households and that the calendar/scanner also could help in showing the grandfather the mathematics homework. The son would just lay the book on the calendar and it would appear at the grandfather's house.



38 • interLiving • Cooperative Design with Families

Figure 10. (left) "What's the toilet seat doing in the kitchen?"

Figure 11. (right) "Mother seeks children. Come in and eat!!!" They have a computer with a modem connection to the Internet. It has a software answering machine installed. It can also receive faxes as well, but they don't really have control over it. The researchers that were going to visit and interview the first time called first to check. However, they got a really strange message on an answering machine, so they thought that the family wasn't home. They left a message, but the family did not hear it, nor did they get a notification of it, since they don't know how to set the software up. They can't shut it off either.

The parents send e-mail to each other at work. Last time it was about a vacation trip to Denmark. The wife had found an interesting website, so she e-mailed the address to her husband. She said it can be hard to get hold of him on the phone, since he is often occupied with visits. If she calls he will often have his phone shut off. If she calls on his mobile he will not take the call either. "But then at least he knows I want to reach him," she said. She has tried to send him SMS messages, but it has taken him so long to understand how to handle it that she has stopped. We talked about how easy it is for young people to catch on to the SMS possibilities.

When looking at the probe photos, we also had some discussions about how things look in their house. In the kitchen there are no lists in the corners after the latest renovation. They say that they have an ugly bathroom and also a whole room that is ugly. It is the same as when they moved into the house and they haven't decided what to do with it yet.

An extra toilet seat lay on a kitchen bench in one of the probe photos. (Figure 10) When the family got the developed pictures back from the lab they noticed it and saw that it was still there on the bench. So they moved it to under the sofa where it still was at the time for the interview. They tried to put it on the toilet but it wouldn't fit. It wouldn't stay open, so they took it away and are going to change it, sometime.

The mother described how her mother had a heart attack two weeks ago and one of the sons took the call with the news, but forgot to tell his mother. He didn't think it was so important. During the time when the grandmother was in the hospital, the woman had difficulty getting in touch with her father, as he never uses his mobile. Sometimes she wanted to talk to her brother, who lives in the same house, but didn't want her father to hear, which was troublesome. "I have called and thought that she had come home, but nobody answers. They don't even have an answering machine, which would be good in a situation like this."

In another photo, the mother is on the balcony yelling for the kids to come home and have dinner. They discuss how far can her voice reach. "If you are in the field you won't hear me," the mother said. "And often you are occupied totally with your game so you don't hear me anyway."

## Interview with blue grandparents

They showed us around their house when we arrived. They don't have much technology in their home – just a TV set and a stereo. In one room there is a weaving chair. The grandmother told us she hardly ever uses it, because she has a bad back. There is a sewing machine in there as well, with a cover on. It does not seem to be used very often either. One of the rooms is for the children and grandchildren, so they can stay over night when they visit. There are toys and children books in this room in addition to beds and mattresses.

We talked about computers, and the grandmother said that she didn't know anything about computers. Then she said that when the grandchildren visit them, they usually read books and do stuff that doesn't require any (electronic) technology. She say that their home is a "relief" from computer games and that the calmness is something that the children seem to like.

We also talked about how technical devices look and that there aren't many to choose from. Before, in the fifties for example, the TV and the stereo were hidden in cupboards, designed to fit with the rest of the furniture. Technical things seldom fit with the rest of the things in a home now.

We discussed how it was good nowadays that the domestic kitchen devices like fridges and stoves are white. The grandmother compared this with the seventies, when fridges were green or brown and if they broke it was impossible to get the same colour replacement.

The grandfather told us that the organisation of house owners in the area is discussing whether they should bring in broadband or not. He isn't that interested since they don't have a computer.

The grandmother says that she likes to write letters, but it doesn't happen very often. She writes postcards if she is abroad and thank you notes. When she first saw someone talking on hands free mobile phone, she thought that the person was a bit odd. She wanted to know where the telephone was that this person was calling. She doesn't like to not know where the person is that she is calling. Both of them think that there are already too many ways to communicate and that they don't need any more. When they were both working, they tried not to call each other at work.

During one interview in their home, we showed them a few examples of what had been done in previous research studies about technologies for families. We showed some example technologies that enable family members to check that older parents are doing ok and are still alive. Both the grandmother and grandfather felt it would be good to have some sort of "help" to know whether their parents are well. "You can't go there every time they don't pick up the phone!" They once had a big scare when the great grandmother did not answer the phone, and they came rushing to see if everything was ok. The great grandmother became annoyed and thought it was up to her to answer or not.



Figure 12. The Communication Kit.

## 2.2 Cultural Probes

Cultural (or communication) probes are designed to help us find out more about the families through less direct means. Probes are meant to "provoke inspirational responses... Like astronomic or surgical probes, they are left behind and hopefully return fragmented data over time." (Gaver et al., 1999) We wanted the probes to be fun, easy and provide an enjoyable or interesting activity for the family members.

This section describes the design of the cultural probes we left with the families to produce in their own homes, followed by descriptions and illustrations of what they produced. Note that some of the following probes have been used with both sets of families, whereas others have been used in only one country.

## **Communication Maps**

The purpose of the communication maps was to encourage the families to describe their families communication patterns to us. We gave each family a large sheet of paper, blank except for the interLiving logo, and asked them to illustrate the members of the family communicate with each other. The assignment was purposely vague: we wanted them to experiment both with the content and the presentation as a creative exercise for the whole family. They were told they could use any approach they liked, including drawings and magazine clippings.

Note that the French families received communication maps at their first home interviews and were asked to work on them independently after the researchers left, whereas the Swedish families were asked to produce as an exercise during their introductory workshop. The families in both Sweden and France presented their communication maps to the other families. (Note: since the French family workshop

Research Methods • 41

occurred after the Swedish family workshop, we were also able to show the Swedish communication maps to the French families.)

## Communication Kit: Binder, diary and notebook

The purpose of the communication kit was to encourage family members to reflect on their communication activities, as they occurred, and to record them in a way that we could learn more about them. The Swedish families received an interLiving communication kit, which consisted of :

- A Binder, which contained the communication diary and the notebook, as well as the instructions, dates, contact information and the ethics statement (appendix 2). We placed a plastic pocket at the end and ecouraged the families to insert small artefacts or other "stuff" to expand the notes.
- A Communication Diary where the families should write down all their contacts during two weeks; one "ordinary" week and one holiday week. The idea was to see how communication patterns changed between the two. The diary pages were white without any headings or divisions. We did not want to restrict or press the families into filling any predefined space.
- A Notebook where they could write freely about contacts, appearance and the project. These pages were also plain white pages.
   (Note : The Swedish families received the Communication Photos disposable camera as part of their communication kit.)

#### **Communication Photos**

The purpose of the communication photos was to encourage family members to take pictures of their home environment, emphasizing communication objects, activities and places. We gave each nuclear family a disposable camera, with a custom-made, color-coded interLiving case and a question on the back. The French instructions were: *Please take pictures of objects, places and people that illustrate the communication in the family*. The Swedish instructions were: *Take photos of places where you leave messages to the others, things that remind you of the others in your family and things that you find pretty or ugly in your home*.

Development was prepaid (double copies) so that the families could get the pictures back and decide for themselves which ones to send back to us. They were also asked to write a sentence on the back of each picture to explain what it illustrates. The families were given approximately two weeks to work on the assignment.

#### Summer memories box

At the end of the second workshop for the Swedish families, all the households were given a box to collect summer memories in. They asked us if the memories should have something to do with communication. We answered that that wasn't necessary at all and that we did not want to be more specific than that. We thought that the results would be more interesting if it was more up to the households to decide. We will use the summer memories collected by both the families and the researchers in an exercise at the third workshop.

## **Swedish Cultural Probes**

The families have also contributed to the InterLiving research by working at home. They have done communication probes, written in a diary, taken photos and annotated them, and some have given us comments in a notebook. During the summer they have also collected summer memories. Those will be shown at the third workshop in Sweden.

The kit that we gave each household contained a few items that we hoped would help the families give the researchers a good understanding of their communication, so we called them "communication probes", rather than cultural probes. The material in our kit was chosen and produced so that the contents would have an integrated appearance.

The probes were given to the households at the end of the first workshop in March. We handed out seven complete kits at the workshop. One was sent to a brother in Paris and still another one was given to the red grandparents some weeks later. The families were given five weeks to enter information into the different probes and return them to us.

We decided to give each household just one type of camera for the three different tasks, instead of one for every task. The important part was when they get the photos back to write their comments on them with help of the questions. Since there would be several people taking pictures, we thought it would be better if the cameras got used up quickly so they would get the photos back quickly, making it easier to remember who took the photo and why.

## **Probes returned**

A month after the first meeting with the families the data from the probes started to arrive at CID, KTH. We studied the information and reflected upon the similarities and differences. This resulted in a set of questions that we thought would be interesting to ask all the households.

The probe method seems to have made the family members very aware of their different communications over time. It helped them to reflect and put into words some of their needs and ideas.

Of course we know that nothing is objectively neat or ugly. But we consider design and expression as part of functionality and by asking such a question we hope to start a process where the family members reflect on artefacts' appearance and character.

## DIARIES

Writing the diary seems to have made the family members very aware of their different communications over time. It helped them to reflect and put words on some of their needs and ideas.

There are big differences in how much information the families put into the diaries. For the two weeks of time the families wrote between three and 29 pages.

Some events were commented twice, once by the woman and once by the man. And some were also be commented by another household in the family. These double or triple perspectives make some entries in the diaries really interesting and revealing stories.

## PHOTOS TAKEN BY THE SWEDISH FAMILIES

Taking photos seems to have made the family members very aware of their space and artefacts. It helped the families to start think about ordinary life in terms of communication and expression. And how they relate to different communications needs, strategies and problems.



Figure 13-16. Places where the blue family leaves messages.

attempt to organise information. Most messages are left in other places though.

"But free days and vacation are clearly visible. At least something!"

44 • interLiving • Cooperative Design with Families

## Places where you leave messages to the others.

Of course we got many photos of refrigerator doors all covered with notes, photos and calendars. One of the more unusual places is the toilet seat cover. The note just lays loose, so you really have to take it in your hand, and hopefully even read it.

## Things that remind you of the others in your family.

Almost anything can remind you of things. And the photos prove that with photos of sculptures, drawings, photos, carpets, presents and a lot more. This also seems to show that it is important to have things around that remind you of others.

## Things that you find nice in your home. (or ugly)

On the task "Take photos of things that you find neat in your home. (or ugly)" we got a lot of different photos sent to us. It seems that no one had any difficulty reflecting on appearance, taking photos of things they thought were nice as well as of ugly things. They annotated them so we would know their opinion on the different things. The objects represented on the photos were from a wide range of areas. There was furniture, paintings and other decorative things, as well as electronic equipment and installations.



Pictures of things that remind of others. Figure 17. (left) Fathers icebear. Figure 18. (down left) Grandchildren. Figure 19. (below) Mother, that helped put up the shelves .





Figure 20. (Top left) "Beautiful suroundings." Figure 21. (Top right) "Our communication hub. The telephone without cord and the answering machine. UGLY THINGS."





*Figure 22. (left) "We like the kitchen. Looks kind of cosy. Doesn't it?"* 

*Figure 23. (right) "A <u>beautiful</u> corner with a <u>beautiful</u> second hand clock, <u>beautiful</u> second hand curtains and a <u>beautiful</u> towel hook. <u>Ugly</u> lamp switch."* 



The different members of the family sometimes had different opinions of some thing. But most often they seem to express similar opinions.

## Photos of the interior and furniture.

Most photos taken of furniture and the interior were said to be nice. Only a few objects in those categories were considered ugly. They were mostly decorations some of them were gifts. And also places that weren't tidied up or messy.

46 • interLiving • Cooperative Design with Families

## Photos of technology

Some mobile phones were considered nice looking. But the most common opinion of technology artefacts was that they were ugly. Every household thought that cords and extension boxes were ugly.

#### Comments

Of course the issue of appearance is more complicated than nice and ugly. But we want the people to become more aware of the appearance so that we easier can investigate its meaning and importance. Of course we know that nothing is objectively neat or ugly. But we consider design and expression as part of functionality and by asking such a basal question we hope to start a process where the family members reflect on artefacts' appearance and character. And put words on why something is neat or ugly.

The comments about the artefacts appearance were given in their context, i.e. a domestic environment. This perhaps gives us one clue. There is a lot of work suggesting that people want their home to be a retreat from work. (Nippert-Eng 1996. Forty, 1986) And those artefacts that you connect with work, like computers, don't fit into a domestic environment.

Furniture that you have bought yourself are most likely nice in your own eyes and they most certainly fit into the context of your own home.

Installations for electricity, lighting, water and climate are things that is built into the house and normally not chosen by the people living there. Therefore they normally don't seem to fit into the style of the specific home. A toaster was among the only nice technology objects. In the interviews people have also talked about mobile phones, the iMacs and Bang & Olufssen electronic equipment as nice. But one

woman said that she had thought of B&O as looking like a toy and not expressing quality. Another woman said the same thing about iMacs.

One interesting photo shows a few toys that were concidered ugly.

- "Terribly ugly toys:
- A doll carriage from grandma,
- soft animal Gustaf that the daughter won't let them throw away,
- ponies, inheritance from the fathers family,
- the pig belonged to the mothers sister."

The carriage is probably considered good-looking by many people, but not by this woman. The cloth is redish and flowery. The steel chassis is brown. White wheels. It looks unused. This can be a typical issue of "taste". The appearance does not fit into this households style or code. Figure 24. Toys



Research Methods • 47

## **French Cultural Probes**

Each nuclear family household was given three communication maps and a disposable camera with prepaid development for communication photos. They worked on these two assignment at home and were given instructions to send the materials back to us by mail by June 2001. At the first French family workshop (see below), each family presented and explained the two probes to the other family (and to us).

#### **Orange family**

The Orange family returned a rich map showing all members of the extended family (Figure 25). A complex color coding shows the many modes of communication used. The legend shows in order: news-groups, reminders paper invitations, paper letters, mobile phone, telephone, email. There is a fair amount of email activity and many reminders (this is a very well organized family). The map also includes the rugby team and officials, the parents of the children being taken care of during the day by the mother, contacts for genealogy research for the Dad, and contacts with the parents of the kids in daycare for the Mom.

The photos cover all common modes of communication. Synchronous communication includes talking (Figure 26) or using the phone. Asynchronous communication includes leaving notes on a board, taking pictures of the children for the grandparents (Figure 27) and keeping documents to give to relatives the next time they visit (Figure 28).

#### Yellow family

The yellow family returned a simpler and more "object-based" map listing all the artifacts of communication: telephone, letters and postcards, postit notes on the front door, notes on the dishwasher, notes in the mailbox, and a magnetic board (Figure 29). It is interesting to note that all these artifacts support communication within the nuclear family (even the telephone which they use as an intercom in their 3-story house). The notes in the mailbox is used to communicate with the daughter: the mother found that this was the best way to make sure she would find the notes. The family also uses post-it notes on the door to the garage for important reminders. The photos (Figure 30) illustrate communication using the artifacts described in the communication map.







*Figure 25. (bottom of page) The communication map of the orange family.* 

*Examples of photos taken by the orange family to illustrate the communication map.* 

*Figure 26. (upper left) "Talking to each other during meal".* 

*Figure 27. (upper right) "Taking photos of children to send to relative".* 

Figure 28. (left) "Keeping a folder for each relative with documents to give them next time you meet them".



*Figure 29. (bottom) The communication map of the yellow family.* 

Figure 30. (both on top) "Talking on the phone", or "using the message board": examples of photos taken by the yellow family to illustrate the communication map.



50 • interLiving • Cooperative Design with Families

## 2.3 Family Workshops

The family workshops provide an opportunity for us to work together with the families. The early workshops gave us an opportunity to more fully explain the project, as well as allow everyone a chance to get to know each other. The workshops are the primary vehicle for working together as design partners, so the exercises are designed to introduce the families to a new way of working together. The first Swedish workshop was intended to introduce the families to the interLiving project and to each other. The French group chose instead to conduct most of these activities in the initial home interviews.

## Sweden: Workshop 1 (March 2001)

The first workshop was the first occasion for the families to meet each other and the researchers. A large part of the day's program was about information around the project: presentation of all participants, families as well as researchers, discussion about ethics, and the use of the research documentation.

At the end of the day, the kits of communication probes were distributed, one per household. Nineteen people from six households attended the workshop.

## The assignment: Communication Maps

The families were asked to create a map of their family and the communication within and around it. They were given large pieces of paper for the map and colored markers, glue, glossy magazines, and other art materials for making drawings and collages.

During the elaboration of the maps, researchers mixed with the families and took part in the discussions rising from the issues of making a visual representation of family communication.

We offered the families the choice of presenting their map only to the group of researchers, or to the larger group or families and researchers. All wanted to present to the whole group.

The three maps highlighted different aspects of family communication, and gave rise to interesting discussion both within and between families.

## RED FAMILY MAP

In the red family map all households are represented by hearts. (Figure 31) Different colors are used to distinguish between means of communication: telephone, face to face conversation, mobile, email. The more intense the communication, the larger the line uniting nodes.

The large heart representing the nuclear family has a smaller heart just above it, connected by many lines to all of the family members. The smaller heart represents the eldest daughter, who just moved out to a place of her own in another city. The father is represented within the family nucleus and outside in an airplane, since he is often travelling. Besides the grandparents and siblings, the map also describes close relations to non-family members: the father's work colleagues and the sons' hockey team.

On the bottom there are a few names that the father presents as the roots of the family: three families of relatives in the United States. Early in their marriage the red couple visited the American families, and they have served as a kind of role model to them in building their own family.

Both the distance between hearts and the thickness of the lines uniting the hearts tell about the emotional closeness between persons and households.

The red family started out very systematically, attempting to approximate the quantity of communication going one direction or the other. An interesting consequence of this was the inclusion of normally non-family members into the family chart.

#### GREEN FAMILY MAP

The green family map used magazine cut-outs and collages to depict the different households and their activities: professional or organizational activities, living with small children. (Figure 32) Color-coding is used for distinguishing between means for communication: live talk, telephone, email, and transportation.

Both grandparents are described with private interests and professional activities. From the grandparents there is a communication link upwards – for communication with God (coded yellow, i.e. by means of live talk).

The family of the elder daughter is characterized by images representing technological disorder and young children. The family of the younger daughter is characterized by technological competence and a city environment.

From the younger families there are branches towards the families of the husbands.

In the green map, people are represented both as nodes within a family structure, and with activity spheres – professional, organizational – of their own. The green map visualizes a situation that is probably typical for many families today: family communication has to accommodate persons that have numerous personal activity spheres besides the family, and this includes the grandparents' generation as well.

#### BLUE FAMILY MAP

The blue family map contains three different structures. (Figure 33) The first is a family tree over the close family (including dogs). The sec-

*Figure 31. (right top). The red family's map. The father, who travels a lot, is represented twice: both in an areoplane, and at home.* 

*Figure 32. (right bottom). The green family's map. Magazine cut-outs depict the interests and activities of family members.* 







Figure 33. The blue family map. The drawing of the summer house also represents the traditional summer family gathering. The pictures in the bottom represent Christmas and birthday parties.

> ond structure is a map over the Stockholm region, pointing out the locations of the different households, including the summerhouse in the archipelago. The latter is represented by a lively and colored image: a house with many flags under a blue sky. The summerhouse image is also a part of the third structure: important events and family gatherings over the year. Every summer there is a large family gathering in the summerhouse. The other two events are Christmas and birthdays.

> The blue nuclear household is located in the countryside south of Stockholm at a distance of about 50 kilometers. Physical distance is an issue for this family, who regularly spend hours driving back and forth from work, and between "family nodes".

The importance of recurring family events - summer gatherings or Christmas parties - as a backbone in family communication is underscored by the blue family map.

In presenting the map, the father describes family communication as dominated by "cars and telephones", and less on computer-mediated communication.

## COMMENTS ON THE MAP EXERCISE

The families were given the choice to present their maps to the researchers only, or to the whole group. All chose to present to the whole group, and as far as we could see the different families enjoyed acting as a family and describing themselves. The presentations of the maps gave rise to discussions between families, as they recognised themselves in the map of the others.

The maps could be read both as a first indication on how the families communicate, which has been followed-up with cultural probes and exercises, but also as a picture of communication exchanges as the glue that makes a family out of group of persons.

## Sweden: Workshop 2 (June 2001)

The second workshop had a more ambitious program with a design exercise in three steps including use scenario description, brainstorming ideas and development of design scenarios with corresponding mock-ups.

One of the green households from the first workshop could not attend. However, two new households were present: the eldest daughter and the grandparents in the red family. Many researchers attended the workshop, including people from Paris and Maryland.

The day started with a brief introduction and then we looked at a video with clips from the interviews with the families. (Note: This video is available on the accompanying CD.) The video was organized as a set of comments around five themes:

- Privacy / Reachability
- Blackboard / Calendar
- Play / Games / Music / ...
- Help with homework/ Company
- Expression / Character / Aestetics

## First exercise: Use scenarios

The families were asked to describe everyday scenarios related to the themes above. At the presentation seven scenarios were presented.

## Lunch with mom (green family) (Figure 34.)

The daughter sometimes wants to join her mother for an unscheduled lunch. But this may fail: after several attempts to contact the mother via telephone, mobile, at the door not knowing the code, etc., the lunch hour is over. Her mother calls back in the middle of the after-



Figure 34. The scenario "Lunch with mom."

noon, at which point she has discovered the messages left by her daughter at the different voicemail accounts.

## Parental "hot sync" (red family)

The children often assume that what is told to one parent will automatically be known by the other. But this is not always so – the father may be angry when the teenage daughter comes home late, ignoring that she told her mother about it in advance. Another instance is when the father had accepted to pay a holiday trip for the daughter's boyfriend. The boyfriend contacted the father, who asked him to tell the booking number to the mother, so that she could pay his trip. The boyfriend communicated the booking number to the mother, but counted on the red father to tell her what to do with it. As the mother wasn't informed that she should pay the ticket, the booking was cancelled.

### Two types of phone calls (red family)

The red family reported several occasions on telephone calls, and the intentions behind them. One of the daughters said that she used to feel disappointed when her father answered shortly on the phone at his work. After having seen him working, she knew the reason. At the mother's new workplace, nobody makes personal phone calls. She is

used to making such calls, as it is a part of family coordination. However, at the new workplace, she feels embarrassed to make a personal call, since nobody else does it. The father keeps contact with his mother through longer "company-oriented" phone-calls, usually when he is driving. The scope is different than during short calls. These calls often occur late afternoon.

## Knowing the importance of a message (blue family)

The 10-year old son answered the phone and got the message that his maternal grandmother had just had a heart attack. He forgot to tell this to his mother until many hours later, at which point she was on her way to some other activity.

## "Let's meet as usual" (blue family)

The grandfather was going to pick up the grandmother with the boat. She had been shopping. He said, "Let's meet as usual." He was thinking of one smaller pier where they had actually had appointments a few times earlier. She was thinking the larger pier where they most often met – about 100 meters away from the other. It took them more than one hour of irritation and worry to find each other.

## Doing the homework (blue family)

The children have homework to do in the afternoons, and if they have a question there is nobody there to answer it. The parents get home late. If the children could contact the grandparents, they could assist with the homework.

## Synchronizing multiple calendars (red family)

The son-in-law in the red family brought up the difficulty in synchronizing calendars, digital as well as paper-based. The father added in the problem of booking family time.

## COMMENTS ON THE SCENARIOS

Only one scenario out of seven was presented with drawings in a storyboard format, "lunch with mom". (Figure 34) In debriefing the workshop we asked ourselves whether it would have been useful to show examples of storyboards to the families.

All seven scenarios presented one way or another referred to communication breakdowns. The scenarios also contained vivid emotional descriptions: strong feelings of longing, guilt, anger, disappointment and uncertainty resulting also from seemingly banal everyday misunderstandings. Even though the idea sheets and design concepts were based on the same scenarios, they had neither the emotional information nor the tight connection to everyday situations that were found in the first presentation.





## Second exercise: Brainstorm

After the presentation of the scenarios above, the families were asked to spend half an hour brainstorming for ideas. As a support we gave them idea sheets – readymade forms with areas for filling in a drawing and a short written description. We had labelled the sheets with seven different sorts of ideas:

- A Cheap Idea
- A Strange Idea
- A Technical Idea
- A Boring Idea
- An Original Idea
- A Funny Idea
- A Smart Idea

They were asked to work quickly and to not dismiss any ideas however bizarre they may seem. The idea sheets were presented with a playful example: the birthday cake fax.

The intention with the idea sheets was to:

- Introduce a playful tone in the idea generation
- Let family members express themselves individually
- Encourage quick idea generation
- Facilitate presentation of ideas (for children, elders) through a standard fill-out formula
- Open up a wide range of ideas

## The idea sheets - overview

Nineteen idea sheets were produced as follows:

- Green family (7) (no children present)
- Blue family (9) (6 made by the children)
- Red family (9) (5-6 made by the children)

## Figures 35-37. Idea sheets

Red family: telepathy transmission "A strange idea: transmission of information. All incoming information is transmitted some way or another. Electronically, meditatively, conversation."

Green family: emotional keyboard

"A smart idea: the keyboard that captures the feeling in the message. My irony should come through to the receiver in order for my message not to be misinterpreted."

#### Blue family: kameraglajjer

"A funny idea: The camera glasses. Somebody in the family can share the sensation of going for a ride on the rollercoaster or something. But see it on the TV screen."

58 • interLiving • Cooperative Design with Families

## THEMES IN THE IDEA SHEETS

## Coordination

- Coordination of different communication channels: digital and physical calendars, telephone connections, email accounts (5 proposals)
- Coordination through live meetings or telepathy (3 proposals)

## Distinguishing between types of communication

- Differentiating between types of telephone calls short fact transmission or emotional communication, long discussions. (3 proposals)
- Adding emotional markers to written messages (1 proposal)

## New technologies

- New places/technologies for messages (using glasses as screen, voice messaging, using TV as message box, message reminders as SMS or from the TV) (5 proposals)
- TV-telephone (1 proposal)

## Company, evasion, autonomy

- New forms of company-over-distance (playing cards between households, sharing the visual field of another person) (2 proposals)
- Teleportation (2 proposals)
- Temporal autonomy (deciding oneself when to go to bed) (1 proposal)

## Control

- Localizing persons that are not home (1 proposal)

## How were the idea sheets used?

In the sheets, stages of an idea can be followed. The design concepts elaborated after the brainstorming sessions were attempts to condense the ideas from the idea sheets into one global application/artefact, or to elaborate on the idea sheet, which included the largest number of functions.

Counting the number of sheets, it is clear that the children created ideas more easily than the adults in this format. Many of the sheets represent variations on the same idea, and most of the ideas are reflected in some form in the final design scenarios.

## Third exercise: Design scenarios

The third exercise consisted of choosing one of the brainstorming ideas, and developing it further. We asked the families to create three visualizations of the concept chosen:

- Design scenario. Visualizing the use of the new artefact through a scenario
- Prototype: A low-tech representation of the artefact

- Image-board: A style guide for the artefact, describing its aesthetic and expressive qualities through a collection of pictures, collages etc. They were given about an hour to develop the concepts, after which each family presented their creations to the group. Actually four scenarios were presented, one for each of the families, and one from the eldest son in the blue family.

## DESCRIPTION OF DESIGN SCENARIOS

## Family Intranet (red family)

In the family intranet, all family members' calendars are united, together with school schedules, travel plans, exams, birthdays and other events. Every update automatically goes through the whole system. You can choose to whom to communicate what. When there is an alert, an SMS is sent out to all family members. The system is automatic. It must not take any extra time from any of the family members. (Figure 38.)

#### The electronic paper/message board (green family)

A digital paper – flat, foldable, portable – where a person gets an overview of contacts and messages. Through the message central a message can get redirected to the channel that is in use – phone, email, mobile. The user can define groups (family, friends) in order to select which information is sent to whom. The digital paper can be hidden on a worktable, under books. By a quick glance you can see if somebody has tried to reach you. Possibly there could also be a GPS function letting you now where family members are. In order to use the paper you identify yourself through a login procedure, thus making it possible to borrow someone else's digital paper and get access to personal messages. (Figure 39)

#### The message central (blue family)

The blue family invented a message central. It works like a scanner, and has both a screen and a scanner. It can be used for leaving voice messages, playing games, or creating a list of things to buy based on the contents in the refrigerator. There are also smaller, handheld devices that can be carried during travels or excursions. For example, a mushroom can be shown to the grandfather who does not come along picking mushrooms, but still is the family authority on which to choose.

Along with mock-ups in cardboard, the concept was presented through a number of Polaroid photos describing user situations. (Figure 40)

# Figure 38. (right top) The red family's intranet prototype (mock-up).

*Figure 39. (right bottom) The green family's electronic paper/message board prototype.* 





The Bongo Fax (presented by one of the sons in the blue family)

"It is like this ... there are buttons on it... you type in where you want to go. If for example the toilet or the telephone are occupied. You dial the telephonenumber...maybe I want to go to your place. You jump into this thing [the Bongo fax], then you get out [on the other side]. You borrow the telephone, the loo, or whatever. Then you jump back again.[...] It is a fax for faxing yourself." (se figure 41)

*Figure 40. The blue family* used Polaroid photos to PLACERING EX. VALSLAP visualize user scenarios with NU HAR UI FATT FORM their prototypes. SKARMEN AR ADEMBEL ABADAS 4 FRAN DA TILL P osed tri ASR ATT SPELA PORTABEL PÅ DISTANS. SKARM TER FIA MEONELANDEN SKICKAS OCH LASES HOJLIGHET ATT SIN EGN & KALENDE HOBILT.



Figure 41. The Bongo fax, a design proposal by one of the blue sons.

## COMMENTS

We were at first taken by the "serious" side of all three proposals, and their emphasis on overview and information sharing. All three proposals dealt with overview – only the Bongo Fax was an exception, pointing at needs of breaking free from the family at times. This led us to some reflections on the dynamic of family structures.

## SUMMARY OF THE SECOND WORKSHOP

Compared to the first workshop, the second workshop came to focus on practical sides of communication: misunderstandings and breakdowns, and systems for coordinating communication channels.

We had expected the families to mix more during the day. In fact all stayed within their family group, even during lunch.

We had also expected more proposals around company and collaboration. The three design scenarios – except the Bongo Fax – have many features in common. All three of them are about coordination and communication, and quite "business-like" in their practical take on sharing information. Two of them responded to a problem that is with no doubt central to the families in question: how to coordinate the many communication channels that are already at hand. They are also fairly complex, since they integrate numerous functionalities into a single device.

In upcoming workshops we will address these issues through other types of activities together with the families.

As feedback to the families we edited a summary video of this workshop and sent to all the households. A copy of the video material is available on the accompanying CD. (Appendix 5)

## France: Workshop 1 (August 2001)

This workshop was the first occasion for the French families to meet each other and the researchers. Because of scheduling conflicts only two of the families were able to participate with only parents and children. The workshop took place on a Saturday from 10:00 to 16:30, in a nice art deco style facility called "La Mutualité" in downtown Paris. Coffee and lunch was served next door.

After introducing everybody and summarizing the project and this workshop goals we worked with the families on a series of activities aimed at getting to know everyone better and feeling comfortable, introducing the families to some of the design techniques we will be using, observing the families working in groups, especially how the children can be encouraged to participate, and initiating some brainstorming about communication in families and possible new technologies.

We observed that the families learned a lot from seeing each others do things differently.

One family remained almost too close to technology, very motivated to improve existing things, while another family was more turned toward new ideas. Participants were comfortable doing different things and we saw that it was important to give the choice of media for expressing ideas

Alex (7) and Matthew (5), the children of two of the researchers in the team also attended the workshop. They did very well playing on the side or sometime helping. They may have distracted the other kids at the beginning but overall they were very helpful to give a more informal start to the workshop.

## Presentation of the communication maps

Each family presented the communication map they had produced. We started first by showing them examples of the communication maps and photos produced by the Swedish families in order to illustrate the larger context of the project and to make them more comfortable showing their own maps and pictures.

The Orange family presented first. Their communication map was very detailed and exhaustive, and they had many pictures. The Yellow family felt like they had not done the exercice well, because their map was simpler and they had fewer pictures. However, both sets of probes provided us with equally interesting information about how people communicate.

## Scenarios

The assignment was to "Tell one or more stories about situations that have happened in your real life. These can be situations with breakdowns, or situations which worked well. It must be based on real situations but you can modify it (e.g. names)"

The families took turn presenting their stories. The exercise worked well, and produced a lot of stories, but was not good for the smaller children who didn't participate in the discussion. We concluded that it is important to start with an activity that better involves the children.

*S1- Orange scenario: Failing to setup a meeting time and place (figure 42).* The father calls from work to tell his wife that he will be back home late, and to come pick him up at the station (busses run less often at this time, and it is a long walk from the train station to home). 2 stories:

version 1: it works... Mother picks up the phone and husband is picked up at station

version 2: Mother is outside, no reception for the mobile phone but she doesn't know it, Father leaves a message, the message is not transmitted to the phone right away, he takes his train, waits at the station, nobody is there. After waiting for a while, he walks home upset that his wife didn't come despite the message. Later, the message finally arrives on the mobile phone, after father is home, showing that it was the cause of the problem.

- Concern: Communicating message

- Issue: not being reachable and not knowing it.



Figure 42. Example of storyboard. The family used magazine clip outs to illustrate the missed message story (see scenario S1 above).



*Figure 43. Example of storyboard: The family used magazine clips, clay and other supplies to build a 3D model of the 70 y. birthday story (see S2 below)* 

## Orange scenario: Sending photos

Grandmother sends by mail a new piece of clothing for a child. Mother takes photos of the child wearing the cloth and gets photos developed. The child chooses the photos that are send by regular mail to grandma. Grandma calls when she receives the photo to say thank you and ask more questions.

## Orange Scenarios: Are the kids deaf or what?

Mother wants the kids to stop playing with the Playstation. They are upstairs and she uses the intercom to tell them to stop. No answer... Are they deaf? Mother ends up going upstairs anyway.

# *S*<sup>2</sup> - Yellow scenario: Arranging a surprise party for the grand mother (*Figure* 43)

Children of grand-mother arranged a surprise party and gift. Many phone were necessary calls to decide what to do and coordinate the event (including one son not calling Grandma early on birthday morning to give her the impression of having forgotten). Using mobile phones from the stores, the siblings finally decide to buy fireworks. They all show up at the party and fire the fireworks late in the night. But they didn't expect it to be so noisy and they hadn't warned the neighbors, who were woken up and upset when they shot the firework around midnight...



*Figure 44. Example of scenario quickly drawn by daughter about postcards that flew away on a boat* 

*Yellow scenario: Lost postcards* (told by teenage daughter, figure 44) Daughter is in vacation with a group of kids in Turkey. On a sailboat she is writing a postcard to her grandma, the card is blown away by the wind... Grandma really loves receiving postcard so Daughter has to buy more postcards but she cannot mail the card until she is back in Paris.

## Storyboard

The goal of this activity was to obtain more details into one situation remembered in the first activity, and to involve all members of the family into to actively build a storyboard describing one of the scenarios.

The assignment was "Illustrate one of the stories you told us, in more details, with any supplies you want ". A table of supplies was available (see Figure 45).

The activity was very successful in getting all members of the families to work together. Everyone participated and they all seem to have



fun (Figure 46). The Orange family created a storyboard out of magazine clippings

Figure 45. The table of supplies. Art, house and office supplies were available as well as piles of magazines to clip.



Figure 46. A family working on a storyboard. Here they are clipping magazines and constructing birthday party rockets with clay.

(Figure 42). The Yellow family was more creative, creating a 3D artifact.

## Word games

This activity took place after lunch. The goal to get away from the scenarios and open the imagination, and to give the families some time outside and without us.

We provided them with a printed list of composite words, e.g., telephone dish-washer high-chair. They were asked to cut the words in two pieces and create about ten new imaginary words (e.g., tele-chair, dish-phone).

Then they went outside for 45 minutes (on their own, i.e. without us) with a digital camera to find illustrations for those words. They presented the photos and explanations at their return. They were told that it didn't have to be realist or involve any technology, that imaginative crazy ideas were encouraged, and that the words should not be related to the situation they had just storyboarded. An example was shown to them before they started (a "sound-chair").

Parents and children were clearly involved in both the word making and photo hunting and having a lot of fun. The activity generated a lot of ideas. The families appreciated going outside as a nice break and seem to have had a lot of fun doing the exercise.

Examples of ideas, some practical, some more science-fiction... Orange family (Figure 47):

- Portable de bureau = Portable-desk-phone: portable phone that becomes a fixed phone when you put it in your desk. (in fact they really described a "phone that works", since they have so much trouble in their daily life with mobile phones)
- Tele-phone = TV-phone: a TV that allows you to phone and see the other person
- Lunettes parlantes = Talking-glasses: Portable phone integrated with glasses. Implants
- Porte-sonore = Sound-door: Says the messages left by other people when one passes through the door. Door flashes when there is a message. (Figure 48)



Figure 47. Example of word games outcome. 6 imaginary words with explanation.

- Photo-scope = Allows you to send photos without using the regular mail. In general a new way to send photos.
- Telephone de famille = Family phone: allows you to call all your family at once. A red line dedicated to the family that actually works. *Yellow family:*
- Velo de soleil = Sun bicycle: has an automatic umbrella when it's sunny
- Tele-album = TV-album: photos that automatically display on the TV
- Tele-moteur = TV-Motor: to go faster whatever you do (presented by 10 year old boy)
- Lave bagage = Luggage-washer: a machine that washes luggage!
- Bip lunette = Bip-glasses: bips when you can't find your glasses. (Figure 49).



*Figure 48. (left and middle) Example of word-game outcome. This photo illustrates the "talking door" idea. The door spoke messages when the family member passes the door. The photo in the middle represents a signal that flashes when there is a message for you.* 

Figure 49. (right) Example of word-game outcome. The "bip-lunette" that beeps when you can't find your glasses. Families reported that it was very helpful to wear name-tags. It gave them an official look and made it easier to enroll street participants.

- Manteau-telephone = Coat-phone: voice is captured by the coat to talk on the phone.
- Cahier parlant = Talking notebook: automatic reading notebook
- Cane compteur = Counter cane: measures distance walked

It is clear from this list that the Orange family was focussed on improving today's technology, while the Yellow family was, again, more creative.

## Mockups

The goal of this last activity was to wrap up the day with an activity "producing" a physical outcome.

The assignment was presented as follows: "Imagine 3 alternative versions of the situation or problem you described in the storyboard. You are welcome to - but do not have to – use the words you just created. You can use the following words to think of ideas. Then we ask you to act out the situation in front of the group, or we can videotape it for you"

- Rigolote (silly)
- Bon marché (cheap)
- Ingénieuse (smart)
- Réaliste (realistic)
- Pratique (practical)
- Sérieuse (serious)
- Chère (expensive)
- Stupide (stupid)
- Science-fiction (science-fiction)
- Compliquée (complex)

The Yellow family was very creative, created props and played a theatrical sketch that was videotaped. It described easy and instantaneous exchange of photos and teleportation. All members of the family were involved, as well as additional cast members from the team of researchers... (Figure 50)



Figure 50. Mockup of instantaneous transmission of photos. The mockup was then used in a theatrical sketch that was videotaped.



Figure 51. Example of mockup

The Orange family seemed too tired and made only quick little mockups using the photos that they had taken earlier, Lego blocks and the supplies. With their mockups they illustrated (Figure 51):

- The family phone as a realistic idea (Lego bricks, with straw placed on different Lego little stub for reaching a different member of the family.)
- The desk phone "that works" as a practical idea.
- The talking-glasses with straws attached to the twin's glasses, as a science fiction idea.

This activity was by far the hardest to complete. Everybody was pretty tired. Also, we had asked the families to act out the solution, and cleary the Orange family was not confortable with that, especially being video-taped acting the scenario. Also, their children, maybe because they were younger, were less involved. It probably would have worked better to ask the families to either act the scenario, or to build a mock-up and describe it. Finally, coming up with three different ideas corresponding to keywords in the list was too complicated and too time-consuming. Nevertheless, the exercice was useful both to us and to the families.

### Demonstrations and wrap-up

At the end of the workshop we demonstrated the technology probes (presented as building blocks that could help find other ideas or could be thrown away to collect early feedback) that we are in the process of building.

The first probe is a shared message board. Users can create new notes, write into them, move them and delete them. The notes are shared between multiple displays that can be installed in different households of the same family.

The second probe is a shared photo album. Each site has a webcam that grabs pictures when it sees significant changes in a scene, and sends them to the other sites. Users at a site can browse the pictures, which age and disappear after a few days. Pictures can also be stored in an album so they don't disappear.

The families reaction to the probes was very positive. They already had ideas for using them, and they seem eager to have them at their homes.

We also gave each family a small Polaroid camera to thank them for the day and to be used for the next "homework" request, to come in the mail in a few weeks.

The next planned events are:

October: Repeat exercices of workshop with Violet family. Oct-Nov 2001: Interviews in homes (nuclear and grandparents) Nov. 2001: installation of technology probes and follow-up interviews January 2001: workshop with all 3 extended French families May 2002: Joint workshop with Swedish and French families in Paris.

## 3. Data Collection and Analysis

Thanks to our initial research experiences with families as our design partners, we have been able to collect a diverse set of data to analyse. From workshop and "home" work artefacts, to video, notes and sketches, all have been collected over the first 8 months of our research project. Due to the vast quantity of data, we have only just begun our analysis process. But even with preliminary analysis on a small subset of data, our InterLiving research activities have already begun to reflect what the data has suggested. What follows is a discussion of our initial results from coding Swedish family journals. It is meant to present an example of our data analysis and results.

## **Coding of Swedish Family Diaries**

At a plenary meeting of the InterLiving research team, initial codes were developed to analyse the data collected by/with the families. These codes were developed as a team and were a result of discussions surrounding some of the initial data collected. Parts of diaries were read aloud, outcomes of the cultural probes were analysed, and video was watched. From these experiences, 5 coding areas of interest were agreed upon: Goals, Concerns, Technology, Locations, and Design Ideas. Within each of these coding areas, a definition was developed, and certain areas were given sub-codes. After this meeting, a small portion of the data was coded and an additional coding area was agreed upon: People. Below are the definitions that emerged from our work, along with the sub-codes, and in most cases, an example is presented:

Goals: The point of the activity or artefact

- Communication: to express a fact, idea, or thought to others, to show something to other people, to pass information on to another person.
- Coordination: to arrange or manage activities with others or for oneself (e.g., time, place, responsibility), often related to calendar management but could also deal with arranging objects in the house.
- Collaboration: to work together on a shared task, usually involves elaboration, creativity, and more complex tasks in general.
- Company: to be together for the point of just being with others, sharing time or experiences, it can concern entertainment or discussion of sharing family histories or reflecting on family occasions.
  (Note: it is easy to go between the goal of company and the three other goals in a given conversation)
- *Example of goals*: Communication: "Dana is back from the pool."
  Coordination: "Can you pick up Dana at the pool?" Collaboration: "How can we organize ourselves so that Dana gets picked up on
time each day?" Company: "Let's look at the photos of Dana at the pool."

**Concerns:** Further defines the goal by giving the problem at hand, or the context of the goal. This coding column will be specific to the artifact being coded and has no specific sub-codes at the moment.

- *Example of concerns*: If the GOAL is Coordination, then the CON-CERN may be fix the car, arrange meeting place, leave the garbage out back.

**Technology:** This describes the tools used to do an activity. Again this column is very context specific and has no specific sub-codes.

- car
- phone
- mobile phone
- fax
- e-mail
- letters

**People:** Describes who is involved in the activity. Should specify the generation of the person (parent, grandparent, child).

**Locations:** This describes the actual place of the activity as well as specifies if it is a co-located or distributed activity.

- *Example of locations:* Parents home, co-located. Car + Grandparents home, distributed.

**Design ideas:** Any idea that may be triggered by the data— this can include ideas we get or ideas that are expressed by the families.

- *Example of design ideas:* different technology can be best suited for different locations

Goal	Concern	Technology	People	Location	Design Ideas
9-Apr					
communication	short technical question, voice	telephone	mother	distributed. Home - work	
communication	short question about the family, voice	telephone	grandmother	distributed. Home - work	
10-Apr					
communication?, coordination ?	collect parking permit	car	mother	Farsta (grandp. place)	
company	looking after children and dog		grandparents children	Grandparents house	
coordination	coordinating times	telephone	mother	unknown	
communication	reassurance	telephone	mother	distributed– summerhouse - farsta	It is reassuring to hear that people have arrived safely after a trip
11 – 15-Apr					
communication	company	none	everybody	co-located	"intense communication" is perhaps easier when everybody is at the same place

Figure 52. To the left is an example coding chart that was developed from the data.

## Analysis of Swedish Family Diaries

Below is our initial analysis of the raw data that was coded from the Swedish Family journals. Since the journals themselves varied widely in style and content, and the use of codes also differed at times (since we are still coming to agreement on what the codes mean), the analysis below is meant merely to offer a rough initial picture. Some frequencies came out strongly enough in the coding, to lead us to believe that despite the roughness of the data, we may have found some interesting trends.

The most frequent goal by far found in the coding of the family diaries was "communication" (see figure 53). The concerns for communication ranged from a son communicating to a grandparent that they had arrived safely, to discussing if a friend could come over. The least most frequent goal was by far "coordination". This code was only found in one family's data, and it's only concern dealt with work issues. It seems at an initial glance, doing a collaborative activity is less common than communicating and coordinating family activities. Only 10 percent of the codes had to do with "company" or time to be social. Even though families were discussing their holiday weeks, much more of their recorded comments had to do with more mundane tasks.

The results of these frequencies, may have more to do with the way our team posed our initial questions to the families, rather than enormous concerns for communication. In the future, we imagine the data will emerge to confirm or suggest differences in the data.

In looking at the locations of each of the goals, a very strong trend emerged from the data, in accomplishing communication and coordination goals, families tended to do this with someone who was in a distributed location (see figures 54-57). Mobile phones and traditional telephones were used a majority of the time to accomplish these tasks.

On the other hand, when it came to accomplishing goals that had to do with company and collaboration, the exact opposite was true. An



Figure 53. Overall Analysis of Goal Frequency in Swedish Family Diaries.



Figure 54. (top left) Frequency of Communication Locations.
Figure 55. (top right) Frequency of Coordination Locations.
Figure 56. (bottom left) Frequency of Company Locations.
Figure 57. (bottom right) Frequency of Collaboration Locations.

overwhelming majority of the activities were discussed as co-located (e.g., babysitting, dinner parties, games). For these activities no technologies were the most frequently coded item in the technology column, food came in a distant second as a technology for co-located experiences.

Given these preliminary results, our InterLiving team may consider developing technologies for communication and coordination tasks that support distributed locations of people, perhaps building on the mobile phones and traditional telephone technologies. On the other hand, if we consider developing technologies for "company" or "collaboration" activities, then we may think about supporting co-located people with these technologies.

Finally, in looking only at the frequency of the technologies discussed in the journals, (see figure 58) we see an overwhelming number of discussions about mobile phones and traditional telephones. Interestingly enough, a distant third was computer email/Internet and closely following that were references to no technology. This lack of technology was very common in the more social family experiences described. The least discussed technology was the TV.

Frequency of Technologies Mentioned in Family Diaries



*Figure 58. The frequency of the technologies discussed in the Swedish journals.* 

#### **Design Ideas:**

Below is a list of the 10 most frequent design ideas to emerge from the Swedish Family diaries:

- When away on vacation some people either continually are in contact with family, friends, and/or colleagues, and some are not at all. Creating a technology that supports being connected or being unconnected is important.
- Developing technologies to give awareness to location seems to be wanted at various times. People want to confirm their arrivals to others, they want to call ahead to see if people are ready to leave, and they want to see if people are home.
- Messages/reminders should be able to be context dependent (e.g., a note on the toilet).
- Information from one source should have a place for it (e.g., all school information—currently some is hidden in places)
- People want to be able to confirm the accuracy of information in their lives (e.g., the time of a meeting)
- Different technologies may be best suited for different locations
- Multiple technologies may be needed to be sure someone receives the information
- Supporting direct personal communication is critical.
- Many times one family member does the majority of the family coordination, yet all members need to know the information.
- Different languages need to be negotiated with the technology.

# **Future Work**



## **Future Work**

Our next steps in regards to working with our families will include the following:

-Continuing our family workshops. In the spring, we will bring all of the families together in Paris for a joint family meeting. We believe it is important that all of our families come to see the entire team that is working on InterLiving research. In addition to this special workshop we expect that "local" family workshops will continue as before.

-Home visits for technology probes. Shortly, our technology probes will be ready for installation in our family's homes. Currently, the hardware technologies are being purchased and the technologies are in the final stages of debugging. Once the technologies have been installed, we anticipate an additional family visit will occur to observe the family's use of the technology and to interview them about their thoughts concerning future directions.

-Continued "home" work for our families. We find that different kinds of information can be more easily contributed by families in their own home at their own pace. Therefore, we anticipate more activities over the winter and spring that ask families to contribute their ideas when at home.

-On-going analysis of data. An on-going effort in collecting and analysing the data from the various probes and workshops is being coordinated between countries. We know that for this data to be effective in helping steer our research, we need to analyse it in a timely manner. Therefore, procedures are being established to accomplish this work.

-Understanding our design partner methods. We expect to do some "meta-analysis" of our methods to understand what is necessary in working with families as design partners. This analysis will be disseminated not only through the usual publication paths, but through a workshop we plan to invite all of the DC projects to attend. We believe some of our experiences may be helpful to other researchers, particularly those working on technologies for the home.

In summary, a great deal has been accomplished in a short period of time with our families. However a great deal more needs to be accomplished in the coming year. We are excited about our existing family partnerships and look forward to the work ahead.

# References

- Beaudouin-Lafon, M., Mackay, W.E., Andersen, P., Janecek, P. Jensen, M., Lassen, H.M., Lund, K., Mortensen, K., Munck, S., Ratzer, A.V., Ravn, K., C. and Jensen, K. (2000). CPN/Tools: A Post-WIMP Interface for Editing and Simulating Coloured Petri Nets. *Petri Nets 2000, 21st International Conference on Application and Theory of Petri Nets, 26-30 June 2000,* Aarhus, Denmark, pp. 19-28.
- Benford, S., Bederson, B., Akesson, K., Bayon, V., Druin, A., Hansson, P., Hourcade, J., Ingram, R., Neale, H., O'Malley, C., Simsarian, K., Stanton, D., Sundblad, Y., andTaxen, G. (2000). Designing storytelling technologies to encourage collaboration between young children. *Proceedings of ACM CHI 2000 Conference on Human Factors in Computing Systems*, pp. 556-563.
- Bjerknes, G., Ehn, P. and Kyng, M. (1987). *Computers and democracy: A Scandinavian challenge*. Alebury, Aldershot, UK.
- Blomberg, J. L. and Henderson, A. (1990). Reflections on participatory design: Lessons from the Trillium experience. *Proceedings of ACM CHI 90 Conference on Human Factors in Computing Systems*, pp. 353-359.
- Bødker, S., Ehn, P., Kammersgaard, J., Kyng, M. and Sundblad, Y. (1987). A Utopian Experience On Design of Powerful Computer-based Tools for Skilled Graphic Workers', in Bjerknes et al (eds.) *Computers and Democracy A Scandinavian Challenge*. Avebury, pp. 251-278.
- Druin, A. (1999). Cooperative inquiry: Developing new technologies for children with children. *Proceedings of ACM CHI'99 Conference on Human Factors in Computing Systems*, pp. 223-230.
- Dykstra-Erikson, E., Mackay, W. and Arnold, J. (2001) Trialogue on "Design of". *ACM/interactions*, 8 (2) Mar. 2001, pp. 109-117.
- Forty, A. (1986). Objects of Desire. London: Thames and Hudson.
- Gaver, W.W. and Dunne, A. (1999). Projected Realities: Conceptual Design for Cultural Effect. *Proceedings ACM CHI'99 Conference of Human Factors in Computing Systems*, pp. 600-608.
- Gaver, B., Dunne, T. and Pacenti, E. (1999). Cultural Probes. ACM/interactions, 6 (1), Jan. 1999. pp. 21-29.
- Greenbaum, J. (1993). A design of one's own: Toward participatory design in the United States, in D. Schuler and A. Namioka (eds), *Participatory design: Principles and practices*. Hillsdale, New Jersey: Lawrence Erlbaum. pp. 27-37.
- Greenbaum, J. and Kyng, M. (1991). *Design at work: Cooperative design of computer systems*. Hillsdale, New Jersey: Lawrence Erlbaum.
- Hindus, D. (1999). The Importance of Homes in Technology Research. Proceedings of the Second International Workshop on Cooperative Buildings (CoBuild'99).
- Johnson, J., Ehn, P., Grudin, J. and Nardi, B. T. K. (1990). Participatory design of computer systems. *Proceedings of ACM CHI'90 Conference on Human Factors in Computing Systems*, pp. 141-144.

- Mackay, W.E., Fayard, A-L., Frobert, L and Médini, L. (1998). Reinventing the Familiar: Exploring an Augmented Reality Design Space for Air Traffic Control. *Proceedings of ACM CHI '98 conference on Human Factors in Computing Systems*. Los Angeles, California, pp. 558-565.
- Mackay, W.E. and Fayard, A-L. (1997). HCI, Natural Science and Design: A Framework for Triangulation Across Disciplines. *Proceedings of ACM DIS*<sup>6</sup>97, *Designing Interactive Systems*. Amsterdam, pp. 223-234.
- Mackay, W.E. (1998). Triangulation within and across HCI disciplines.
  Invited commentary on the article "Damaged Merchandise? A Review of Experiments that Compare Usability Evaluation Methods", W.D Gray and M.C. Salzman. *Human-Computer Interaction*, Vol. 13 (3), pp. 310-315.
- Mackay, W.E., Ratzer, A., and Janecek, P. (2000). Video artifacts for design: Bridging the gap between abstraction and detail. *Proceedings of ACM DIS* 2000, *Conference on Designing Interactive Systems*. Brooklyn, New York: ACM Press.
- Mumford, E. and Henshall, D. (1979). *Designing participatively: A participative approach to computer systems design*. Manchester Business School, UK.
- Mynatt, E.D., Rowan, J., Craighill, S. and Jacobs, A. (2001). Digital family portraits: supporting peace of mind for extended family members. *Proceedings of the ACM CHI 2001 Conference on Human Factors in Computing Systems*, pp. 333-340.
- Nippert-Eng, C. (1996). *Home and Work: Negotiating Boundaries*. Chicago: University of Chicago Press.
- Rosenman, M.A., Gero, J.S. (1998). Purpose and function in design: from the socio-cultural to the techno-physical, *Design Studies* 19, pp. 161-186.
- Schuler, D. and Namioka, A. (1993). *Participatory design: Principles and practices*. Hillsdale, New Jersey: Lawrence Erlbaum.
- Wejchert, J. (2001). Journeys across i3, *i3 Magazine*, no. 11, July 2001, pp.28-34.

# Appendix



## 1. First letter to the Swedish and French families

This is an english translation of the first information that we sent to the interested families in Sweden, together with a letter asking for names, age, adresses, etc. (Figures A1-A4)

The French families recieved a letter with the same content.

### InterLiving

The goal of the InterLiving project is to, together with families, study and develop technologies for communication between generations.

### We who work in InterLiving

Yngve Sundblad, professor in computer science direction to human computer interaction Bosse Westerlund, industrial designer Sinna Lindquist, etnologist Helena Tobiasson, coordinator/ergonomist.

#### Background

"I'm going home to my family." Today, this simple sentence can mean so many different things. "Home" can mean anything from the four walls of an apartment, single-family or group home, to a virtual "home" on the Internet. In addition, the definition of "family" has come to mean anything from a traditional nuclear family with two parents and two children under the same roof, to a more distributed family where parents and children may live in separate households. Maybe tha parents are divorced, maybe the children have to go to school in another town. Seldom does grandparents live together with the younger part of the family.

For these new more scattered and commuting families the coordination of the daily life can be chalanging.

As the notion of home and family has changed, even the societys working habits and the pace of the weekdays has changed. Many people believe that this may be due to the increased access to and use of massmedia products, computers and mobile communication. Technologies have in some sense made it easier to live apart. A result can be that we spend less time at home with the family.

#### Aim

The aim of the InterLiving project is to develop technique that can contribute to bring the family together. In order to do so we need to know what keeps families together; holidays, birthdays, meals, household work, play and games. We hope to develop technology that mantain and make these activities easier.

We know that personal computers with mouse, keyboard and a display tend to isolate people and are dominated by individual use. One of interlivings aims is to investigate how technology can be integrated into the home environment. Can this technology be embedded in any everyday objects like the kitchen table, the fireplace, the bed or in the clothes? Should the technology be portable and wareable? To answer these and other questions, we need to learn more about family structures and the families need for communication. We intend to develop artifacts that use smallscale, embedded technology and mobile communication.

### Method

InterLiving is a cooperation project between researchers and families, three in Sweden and three in France. The researchers are from different scientific diciplines, ethnologists, designers, and computer scientists. The cooperation with the families will in this first stage create understanding for the complexity for their geographic and comunicative situation. In the second stage the the researchers and the "users" will together design technology and make it as useful and adapted as possible. We will use a mixture of reliable scientific methods and exploratory development. Example of methods are ethnographic studies, interview, videodiaries, workshops where we discuss and work together with paper, glue and projections.

## **Expected results**

We will create a greater understanding of the impact that this type of technology can have on families of today. A successful integration av the new tehcnology can not be measured in efficiency, but will be more subtle. We think that we can use the term successful if the families take the technology for granted and look upon it as an important but "invisible" part of their daily life. The technique should also be robust enough to be able to follow for its user. The results will be documented and published as research reports and as contributions on conferences.

## **Family participation**

The participation will be both benefitial and including commitments. We will arrange a workshop on a remote location together with the french families. You will be able to keep some of the equiptment that you will use during the project. Family members will have a chance to contribute to the design of new technology that reflects them.

The committments are to be a partner during the three years that the project runs and after agreement cooperate with researchers both in your home and at other places. That might mean intense periods with weekly contact but more often calmer phases with time for reflection.

We understand that communication within families can be delicate. Everything you tell us will be kept confidential. Parts of the research that we videotape we may want to show in a bigger context. We will ask for your permission when we will include any pictures or video in aany publication. Also, you are completely free to say no at any time.

#### **Questions?**

Contact Helena Tobiasson on the phone, via mail or e-mail. Helena Tobiasson 08-790 9273 tobi@nada.kth.se http://cid.nada.kth.se/interliving/

## - - - - - -

(Figure A3)

#### Hi

Here ismore information about CID and the InterLiving project and a paper copy of InterLivings web site.

If you still are interested of participating in the project after reading the information we want you to answer a couple of questions. We would like the answers at the latest

Tuesday march the 6th, 2001.

It is nice that so many families have contacted us, but that means that note everyone can participate. We hope to be able to the chosen families no later than week 10.

The first meeting with families and researcher will be in the end of week 11.

Kind regards ...

#### - - - - - -

(Figure A<sub>4</sub>)

Questions

Fill in information belowand send back to InterLiving. People under the same roof in the same box.

Who wants to participate? Name and age? Adress and telephone number.

Broadband yes/no, Name of host.µ (Three times)

---

---

We need one contact person through whom we can easily reach you, mail, e-mail or phone.



01-02-20

CID, Centrum för användarorienterad IT-design

## InterLiving

InterLiving har som målsättning att tillsammans med familjer studera och utveckla teknik för kommunikation mellan generationer.

#### Vi som jobbar i InterLiving

För närvarande är vi fyra personer som jobbar med InterLiving projektet; Yngve Sundblad, professor i datalogi med inriktning mot människa/datorinteraktion Bosse Westerlund, industridesigner Sinna Lindquist, etnolog

Helena Tobiasson, samordnare/ergonom.

#### Bakgrund

"Nu går jag hem till min familj." Den meningen kan ha många olika betydelser. Hem kan vara allt från en förortslägenhet, villa, radhus, kollektiv till en bondgård. Det kan också betyda "hem" på nätet, hemsida. Ordet familj har också fått en utökad mening, alltifrån den traditionella kärnfamiljen där mamma, pappa, barn bor under samma tak till en fysiskt mer utspridd familj där föräldrar och barn inte bor på samma plats. Kanske är föräldrarn skilda, kanske barnen måste gå i skola på annan ort. Sällan bor far- och morföräldrar tillsammans med den yngre delen av familjen. För de här nya mer utspridda och pendlande familjerna innebär det stora utmaningar när det gäller att samordna och koordinera det dagliga livet.

Liksom hem- och familjebegreppet har förändrats har även samhällets arbetsvanor och vardagens takt och rytm ändrats. Många tror att detta beror på ökad tillgång till och bruk av massmediala produkter, datorer samt mobil kommunikation. Teknologin har till viss del gjort det enklare att leva ifrån varandra. Ett resultat kan bli att vi tillbringar mindre tid inom familjens hägn.

#### Syfte

InterLiving har som syfte att utveckla teknik som kan bidra till att sammanföra familjen. För det behöver vi veta mer om vad som håller ihop familjer; högtider, födelsedagar, måltider, hushållsarbete, spel och lekar. Vi hoppas kunna utveckla teknologi som upprätthåller och förenklar dessa aktiviteter.

Vi vet att persondatorer med mus, tangentbord, skärm tenderar att isolera individen och domineras av individuell användning. Ett av InterLivings syften är att se hur man kan integrera teknologin i hemmiljön. Kan tekniken bäddas in i vardagsföremål som exempelvis köksbordet, öppna spisen, sängen eller i kläderna? Ska tekniken vara möjlig att bära med sig? För att svara på dessa och andra frågor behöver vi lära mer om familjestrukturer och familjens behov av kommunikation samt genom att dra nytta av småskalig och inbäddad teknologi och mobil kommunikation.

CID CID

	Besöksadress	Telefon	Telefax	E-post
	Lindstedtsvägen 5,	08-790 9273	08-790 90 99	tobi@nada.kth.se
H	plan 6			Internet
ockholm				http://cid.nada.kth.se/

Figure A1. Info letter to the interested Swedish families, page 1(4). (Scaled 75%)

#### Metod

InterLiving är ett samarbetsprojekt mellan forskare och familjer, tre i Sverige och tre i Frankrike. Forskarna är från olika vetenskapliga discipliner, etnologer, designer och dataloger. Samarbetet med familjerna syftar till att i det första skedet skapa förståelse för komplexiteten av deras geografiska och kommunikativa situation. I det andra skedet syftar samarbetet till att forskare och "användare" ska ta fram tekniken tillsammans för att få den så anpassad/användbar som möjligt. Detta kommer att ske genom en blandning av beprövade vetenskapliga metoder och explorativt utvecklingsarbete. Exempel på metoder är etnografiska studier, intervjuer, videodagböcker, workshops där vi diskuterar och bygger tillsammans med hjälp av papper, klister och projiceringar.

#### Förväntade resultat

Vi vill skapa en ökad förståelse av den påverkan denna typ av teknik kan ha på familjer av idag. En lyckad integration av den nya tekniken kan inte mätas i effektivitet, utan är mer av subtil art. Vi anser att vi kan använda termen lyckad om familjerna tar denna teknik för givet och ser på den som en viktig men "osynlig" del av deras vardag. Det ska dessutom vara en teknik som tillräckligt robust för att följa med i familjernas föränderliga liv och leverne. Tekniken ska skapa ett mervärde för dess användare.

Resultaten kommer att dokumenteras och publiceras som forskningsrapporter samt som bidrag på konferenser.

#### Familjedeltagande

Familjernas deltagande kommer att innebära både fördelar och åtaganden. Workshop på annan ort tillsammans med de franska familjerna. Ni kommer att få behålla en del av den tekniska utrustning som kommer att användas under projektets gång. Alla familjemedlemmarna kommer att få möjlighet att bidra till den teknikutveckling som berör dem.

Åtagandet är att finnas med som en partner under de tre år som projektet pågår och att efter överenskommelse samarbeta med forskare både i hemmet och på annan plats. Det kan innebära intensiva perioder med veckovis kontakt, men oftast lugnare faser ägnade åt eftertanke och reflektion.

Vi är medvetna om att studier av kommunikation i hemmet kan vara känsligt. Allt ni meddelar oss är konfidentiellt. Vissa delar som dokumenterats med video kan vi vilja visa i större sammanhang. Vi kommer att be om er tillåtelse när vi vill använda materialet. Ni har möjlighet att säga nej till något ni inte vill delta i.

#### Frågor?

Kontakta Helena Tobiasson på telefon, via post eller e-post. Helena Tobiasson 08-790 9273 tobi@nada.kth.se http://cid.nada.kth.se/interliving/

InterLiving

2001-02-20

2

*Figure A2. Info letter to the interested Swedish families, page 2(4). (Scaled 75%)* 

86 • interLiving • Cooperative Design with Families



01-02-20

### Hej,

Här kommer mer information om CID och projektet InterLiving samt en papperskopia av InterLivings webbplats.

Om ni fortfarande är intresserade av att delta i projektet efter att ni läst informationen skulle vi vilja att ni svarade på några frågor. Vi skulle vilja ha svaren senast

#### tisdagen den 6/3 2001.

Det är glädjande att så många familjer hört av sig till oss., men det innebär att inte alla som vill kan delta. Vi hoppas att vi kan meddela vilka som blivit antagna senast

#### i slutet av vecka 10

Det första mötet mellan familjer och forskare kommer att äga rum redan

#### i slutet av vecka 11

Vänliga hälsningar,

Yngve, Bosse, Sinna och Helena



Adress

NADA, KTH

100 44 Stockholm

CID

*Besöksadress* Lindstedtsvägen 5, plan 6

*Telefon* 08-790 9273 *Telefax* 08-790 90 99 E-post tobi@nada.kth.se Internet

http://cid.nada.kth.se/

Figure A3. Info letter to the interested Swedish families, page 2(4). (Scaled 75%)

<b>Frågor</b> Fyll i uppgifterna nedan och skicka de till oss i InterLivir De som bor under samma tak i samma ruta!	g
Vilka vill vara med? Namn och ålder?	Addresser och telefonnummer
Bredband Ja vilken värd Nej	
Vilka vill vara med? Namn och ålder?	Addresser och telefonnummer
Bredband Ja vilken värd	
Nej	
Vilka vill vara med? Namn och ålder?	Addresser och telefonnummer
Bredband Ja vilken värd	
Vi behöver en kontaktperson genom vilken vi lättast kan Post, e-post eller telefon	nå er
InterLiving 2001-0	2-20

Figure A4. Info letter to the interested Swedish families, page 4(4). (Scaled 75%)

## 2. The Binder

(Figures A5-8.)

## **Ethics statement:**

Studies in the home environment can be delicate. We will treat everything you say as confidential and will not use your name or details that would make it easy to identify you in our publications. We use video to document our observations. We will ask your permission before we show any video clips at talks or conferences. This concerns even photos and quotes. You should say no if you do not want to participate in any activities; you do not need to explain your reasons to us.

## Instructions:

## Cameras

There are two cameras (one with and one without a flash) to take photos of:

- places where you leave messages to other people in your family
- things that remind you of other people in you family
- things that you find nice or ugly in your home

Write your address on the letter to Crimson lab. Send the exposed camera in the envelope to Crimson. Crimson will send you the photos back to you. Annotate the photos on why you chose the motive. Put the annotated photos in the envelope to interLiving and put it in the mailbox. Keep the double.

## Calendar

We want you to write a diary between Monday the 9 of April and Sunday the 22 of April, on the communication within your family and how it was done (telephone, postcards, e-mail, notes, etc). Remember, for every day, to write the date and the person who wrote.

## Notes

Please, write or draw your reflections and thoughts that concerns the family communication and interLiving. Collect everything you find interesting.

We want the content back to CID at the 27 of April 2001.

## Contact:

## interLiving Designing Interactive, Intergenerational

Interfaces for Living Together. IST-2000-26068 http://interliving.kth.se

## Forskningsetik

Studier av kommunikation i hemmet kan vara känsligt. Allt vi får veta om er är konfidentiellt och vi kommer inte publicera namn och detaljer som gör det möjligt att identifiera er.

Vi kommer att använda video för att dokumentera arbetet. När vi vill använda videoklippen i större sammanhang, som konferenser, kommer vi att be om er tillåtelse. Detta gäller även fotografier och citat.

Om det är något ni inte vill delta i, har ni rätt att säga nej utan att behöva motivera varför.

Tveka inte att kontakta oss om ni undrar över något.

*Figure A5. Ethics statement. A page in the binder that each Swedish household got together with the probe package.* 

## interLiving Designing Interactive, Intergenerational

Interfaces for Living Together. IST-2000-26068 http://interliving.kth.se

## Instruktioner:

## Kameror

Det finns 2 kameror (en med och en utan blixt) för att fotografera:

- platser där du lämnar meddelanden till andra i din familj
- saker som påminner dig om andra i din familj
- saker som du tycker är snygga och fula i ditt hem

Skriv din adress på lappen till Crimson.

Skicka den färdigexponerade kameran i kuvertet adresserat till Crimson.

Crimson skickar tillbaks fotona till er.

Skriv på fotona varför ni har valt motivet.

Lägg de kommenterade fotona i kuvertet adresserat till InterLiving och posta. Dubletterna får ni behålla.

## Kalender

Mellan måndagen den 9/4 och söndagen den 22/4 2001 vill vi att ni försöker föra dagboksanteckningar över vilken kommunikation ni haft inom familjen och hur den har gått till (telefon, vykort, e-post, lappar, etc.).

Kom ihåg att för varje dag skriva datum och vem som skrivit.

## Anteckningar

Skriv eller rita gärna reflektioner och tankar som rör familjens kommunikation och InterLiving. Spara allt som ni tycker är intressant.

Mappen vill vi ha tillbaks till CID senast den 27/4 2001.

Figure A6. Probe instructions. A page in the binder that each Swedish household got together with the probe package.

## interLiving Designing Interactive, Intergenerational

Interfaces for Living Together. IST-2000-26068 http://interliving.kth.se

## Kontakt:

InterLiving CID, Centrum för användarorienterad IT-design NADA, institutionen för numerisk analys och datalogi Kungl Tekniska Högskolan Lindstedtsvägen 5 100 44 STOCKHOLM http://cid.nada.kth.se

Helena Tobiasson, projektsamordnare tel o8 790 92 73 e-post tobi@nada.kth.se

Bosse Westerlund, industridesigner tel 08 790 68 96, mobil 070 511 11 98 e-post bosse@nada.kth.se

Sinna Lindquist, etnolog tel o8 790 92 76 e-post sinna@nada.kth.se

Yngve Sundblad, professor tel 08 790 71 47 e-post yngve@nada.kth.se

## Övriga medarbete:

KTH, Stockholm – Björn Eiderbäck. University of Maryland, USA – Ben Bederson, Allison Druin, Catherine Plaisant, Hilary Browne, Michele Platner. INRIA, Frankrike – Wendy Mackay, Guillaume Pothier. LRI / Université Paris-Sud, Frankrike – Michel Beaudouin-Lafon, Paul Ladeveze. Interactive Institute, Malmö – Åsa Harvard.

*Figure A7. Contact information. A page in the binder that each Swedish household got together with the probe package.* 

# interLiving IST-2000-26068

# Accord de confidentialité

Respect de la vie privée, droit à l'image

Les études dans l'environnement familial peuvent être délicates.

Nous considérons que tout ce que vous direz lors de nos entretiens et ateliers est confidentiel et n'utiliserons pas vos noms ou des détails qui pourraient vous identifier dans nos publications.

Nous utiliserons des enregistrements vidéos, des photos et vos commentaires pour documenter et compléter nos observations. Nous demanderons votre permission avant d'utiliser ces documents dans des présentations ou des articles scientifiques.

Vous pouvez refuser de participer à n'importe quelle activité ; vous n'avez pas besoin de nous expliquer vos raisons.

Le représentant du projet

Le représentant de la famille

Figure A8. The French ethics statement.

# 3. Letter to the Swedish families after the second workshop

Figures A9-10.

Hi, thanks for a lovely day and a very well performed workshop! It was nice to see that everyone contributed and laid an effort on the work.

After finishing the workshop the researchers went through the day to sort out what had happened during the day. We think everything worked very well, but there are things we could improve. Here are some of our comments and we hope that they will make it easier for you to make your comments. (We also send you a referee in this letter).

#### Introduction and video

The researchers were too many. The explanation to that was that as many as possible should be introduced to you and to us ant to different working methods. The video was perhaps a bit too long to keep up every body's interest.

## Scenarios

We could have given you some examples on a scenario to make the task clearer, but the results you came up with was brilliant. Exactly the kind of every day situations that we think is good to have as a starting point for previous work.

#### **Generating ideas**

The point with the idea sheets was to make it easier to put down the ideas on paper. They were also an invitation to playfulness and many different ideas. You worked in the family groups, which was not the basic idea. Sometimes the idea sheets seemed to be a trigger for ideas. Sometimes they stopped the flow of thoughts and just made you categorize the idea into a specific category.

#### **Concept development**

Vi could have been better in describing and illustrating how we thought the work should proceed. Even so, the result of your work was well done and developed from the ideas. three of the proposals had a great deal in common, which show one interesting direction to search. No group described their ideas with Imageboard. Partly because there were too little time to and partly because we didn't show any examples on how it could be used.

### Presentation

All groups were described with simple and clear prototypes. After the presentation we should have tried to conclude the results of the day and thank everyone for participating and for all the efforts put down

in the work. We thought we didn't want to take much more of your time, since we had exceeded the time limit.

## Demonstrations

The demonstrations seemed a bit unplanned at the end.

## Conclusion

Conclusion was a disappointment... You didn't get a proper THANK YOU for your astonishing work.

## The meeting the 9/9

We would like to hear your comments and thoughts of the workshop. There will be time next workshop to discuss changes and improvement and how we better make everybody come to their right. We also want to discuss the results so far and how we're getting on from here. Other activities.

Presentation of summer memories Possibly work in other group constellations than family groups.

We wish you a really nice summer, Yngve, Sinna, Helena, Åsa, Wendy, Bosse, Björn



01-06-17

CID, Centrum för användarorienterad IT-design

#### Hej,

Tack för en fantastisk dag och ett mycket väl utfört arbete! Det var jätteroligt att se hur alla la ner energi och bidrog med sitt.

Efter avslutad workshop gick vi i forskargruppen igenom vad vi gjort och vad som hade hänt under dagen. På det stora hela tyckte vi att allt fungerade mycket bra, men det finns givetvis sådant som kan bli bättre. Här är några av våra kommentarer på det vi gjorde och hoppas att de ska underlätta för er att ge era synpunkter. (Vi skickar också ett referat bilagt i brevet.)

#### Introduktion och video

Vi från forskarsidan var för många. Förklaringen låg i att alla inom projektet måste introduceras för er och för oss och för olika arbetsmetoder. Videon var kanske någon minut för lång för att alla skulle orka hålla intresset uppe.

#### Scenarier

Vi hade kunnat ge exempel på något scenario för att göra uppgiften tydligare, men resultaten som ni arbetade fram var lysande. Just den typen av vardagssituationer tror vi är bra att ha som utgångspunkter för vidare arbete.

#### Idégenerering

Poängen med formulären var delvis att göra det lättare att sätta idéer på papper genom att det räckte att fylla i formuläret. De var även tänkta att bjuda in till lekfullhet och fler typer av lösningar. Ni arbetade vidare familjevis, vilket kanske inte var självklart. Lapparna med färdiga kategorier verkade ibland göra att idéerna kom fram lättare. De tvingade fram idéer på specifika teman. I andra fall stannade idéflödet upp av att man tvingades att kategorisera färdiga idéer.

#### Konceptutveckling

Vi hade tydligare kunnat beskriva och illustrera hur vi hade tänkt att arbetet skulle gå till. Även här så blev resultatet väl genomtänkt och tydligt utvecklat ur idéerna. Tre av förslagen hade en hel del gemensamt vilket tyder på att det är intressanta vägar att utforska. Ingen grupp beskrev idéerna även med hjälp av Imageboard. Det var dels för lite tid avsatt och dels hade vi inte visat några exempel på hur det kan se ut.

#### Redovisning

Alla projekt beskrevs med hjälp av enkla och tydliga prototyper. Efter redovisningen borde vi ha försökt sammanfatta resultaten och tacka för allt arbete som lagts ner. Men vi hade väl en känsla av att vi inte ville ta mer av er tid i anspråk. Vi hade ju redan överskridit den tid som vi hade kommit överens om.



	Adress	Besöksadress	Telefon	Telefax	E-post
	CID	Lindstedtsvägen 5,	08-790 91 00	08-790 90 99	cid@nada.kth.se
)	NADA, KTH	plan 6			Internet
	100 44 Stockholm				http://www.nada.kth.se/cid
)					

*Figure A9. Letter to the Swedish families after the second workshop. page 1 (2) (Scaled 75%)* 

96 • interLiving • Cooperative Design with Families

Demonstrationer Demonstrationerna tycktas lita planläst inklämda i slutat
Avslutning Avslutningen blev lite snopen Ni fick inget ordentligt TACK för ert enastående arbete!
Inför mötet den 9/9 Vi vill också gärna höra era kommentarer och tankar kring vad vi gjorde under workshopen. Vi avsätter tid för att nästa gång kunna diskutera förändringar och förbättringar och hur vi tar tillvara allas erfarenheter och kunskaper. Vi vill också diskutera vilka resultat vi tillsammans kommit fram till hittills och hur vi går vidare.
Övriga punkter är: Redovisningen av sommarminnena. Möjlighet att arbeta i andra grupper än i familjegrupperna.
Vi önskar er alla en riktigt skön sommar,
Yngve, Sinna, Helena, Åsa, Wendy, Bosse, Björn
Bifogas: sammanfattning av workshopen.
Interliving Workshopp 2001-06-17 1009-10-15 0.(0)
InterLiving Workshopp, 2001-06-17 1998-10-15 2 (2)

Figure A10.Letter to the Swedish families after the second workshop, page 2(2). (Scaled 75%)

## 4. Permission to publish photos and quotes in a paper.

Figures A11-12.

## Hi,

Hope you have had a nice summer.

We all here on CID have had nice vacations. But we have been doing some work too. We have been writing a contribution to a conference on technology in domestic environments. In the proposal that you receive in this letter are some photos of you. We want you to look at them and tell us if you approve of the paper. Or if you want to change anything.

It is rather urgent, so it's good if you can leave your comments as soon as possible, at the 27 of August at the latest.

You can call if you want to discuss something. Call Bosse on 08-790 68 97 or 070-511 11 48. You can call in the evening as well. We also send you a vidoe tape in the envelope. One film is the cut from the interviews with you and the other is a draft from the workshop in spring.

We look forward to meeting you the 9 of September. Best wishes. Yngve, Sinna, Helena and Bosse Attached: Paper: "Cooperative design of..."

Approval of publishing

Prepaid envelope

Video tape

(Page 2)

Approval of publishing:

Please sent this to us in the prepaid envelope as soon as possible, 27 of August at the latest.

Yes, I approve that you submit the paper (1) with the date 2001-08-20 to a conference (2) about domestic technology.

Name: I want you to remove following pictures, text lines before the paper (1) is published at the conference (2):

Mark in the document and sent them with the envelope. Name:

(references)

Sent 2001-08-20 from CID, NADA, KTH, 100 44 Stockholm, Bosse Westerlund, 08 790 6876, 070 511 11 48

KUNGL OCH KONST KONST HÖGSKOLAN CID, Centrum för användarorienterad IT-design	01-08-20
	"Familjerna i InterLiving"
<ul> <li>Hej,</li> <li>Hoppas att ni har haft en sk</li> <li>Det har alla vi på CID haft.</li> <li>bidrag till en konferens son detta brev finns det en del f och meddelar oss om ni tyco om ni vill ha någon förändr Det är ganska bråttom, så d senast 2001-08-27.</li> <li>Du får gärna ringa om du v 070-511 11 48. Du kan ring</li> <li>Vi passar på och skickar me vi klippte ihop från intervju sommaren.</li> <li>Vi ser fram emot att träffas</li> <li>Med vänliga hälsningar,</li> </ul>	i har jobbat en del också. Bland annat har vi skrivit ett andlar om hemteknologi. I det förslag som ni får med i ografier där ni är med. Därför vill vi att ni tittar på dessa r att det är OK att vi lämnar in papperet som det är. Eller g. är bra om du svarar så fort som möjligt, diskutera något. Ring då till Bosse på 08-790 68 96 eller även på kvällarna. en videokasett i kuvertet. På den finns dels den film som na med er och dels ett sammandrag av workshopen innan
Yngve, Sinna, Helena och l	sse
Bifogas: Paper: "Cooperative design of Godkännande av publicering Frankerat kuvert Videokasett	
Adress     Besöksadres       CID     Lindstedtsväg       NADA, KTH     plan 6       100 44     Stockholm	TelefonTelefaxE-post5,08-790 91 0008-790 90 99bosse@nada.kth.seInternethttp://cid.nada.kth.se/

Figure A11. Letter to the Swedish families asking for permission to publish pictures and quotes in the Equator paper. A video from the second work-shop was sent along with the letter, page 1(2). (Scaled 75%)

Interfaces for Living Together. IST-2000-26068 http://interliving.kth.se
Godkännande av publicering:
Vänligen skicka detta till oss i det medskickade kuvertet så snart du har möjlighet, allra senast 2001-08-27.
Jag godkänner att ni lämnar in papperet(1) med datum 2001-08-20 till en konferens(2) om hemteknologi.
Namn
Jag vill att ni tar bort följande bilder, textrader innan papperet(1) publiceras på konferensen(2): Markera direkt i dokumentet och skicka med de delarna.
Namn
(1) Papperet heter: Cooperative design of communication support for and with families in Stockholm – communication maps, communication probes and low- tech prototypes
(2) Konferansen: Workshop on Ubiquitous Computing in Domestic Environments, i Not- tingham, 13-14 September 2001 http://www.comp.lancs.ac.uk/sociology/EQUATOR/Homescfp.html
Skickat 2001-08-20 från CID NADA KTH 10044 Stockholm

Figure A12. A form for permission or denial of permission to publish photos and quotes in the Equator workshop paper, page 2(2). (Scaled 75%)

100 • interLiving • Cooperative Design with Families



Collaborating Partners: Kungl Tekniska Högskolan, KTH Universite Paris-Sud, LRI Institut National de Recherche en Informatique

et en Automatique, INRIA

ISSN 1650-8009 ISBN 91-7283-183-9

Available on request from: CID/NADA/KTH SE-100 44 Stockholm Sweden