Supporting the distributed family: The need for a conversational context

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ABSTRACT
Two studies on how to support communication between grandparents and grandchildren are presented. The first study, an interview with 12 parents, investigates the conversation between grandparents and grandchildren in face-to-face and phone situations. The results of the study suggest that in the face-to-face situation conversation is closely tied to the concurrent activity. The phone does not support this kind of conversation. This might explain why the calls are short and infrequent. In the second study, alternative communication technologies are studied using a focus group. Two of them aimed at sharing a context for conversation. They were well received. The technology that supports always-on connection was objected due to privacy concerns.

Author Keywords
Grandparenting, privacy, CMC, phone, social computing

ACM Classification Keywords
H5.2. User interface.

INTRODUCTION
Children and grandparents benefit from each other's company. Grandparents represent safety and continuity and a portal to family history and traditions [1,4,12]. For the grandparents the positive aspect by grandparenting is reported to be "the possibility to observe their progress and watch them grow", while "absence of contact " is regarded as negative [12]. Due to the increasing mobility and fragmentation of families, face-to-face (f2f) contact between grandparents and grandchildren might suffer in the modern western world. This paper investigates how communication technology could help bridge the communication gap for grandparents and grandchildren living apart. First, f2f and phone conversations between children and grandparents are studied. In the second study three alternative communication technologies are sketched and tried in a focus group.

STUDY1: GRANDPARENT - GRANDCHILDREN CONVERSATIONS
The study had two goals; first to explore the phone conversations between grandparents and grandchildren, and then, to explore f2f conversation between them, especially with respect to the situation in which the conversations took place.

Method
The study was conducted as an individual interview with parents. The interview addressed three main themes: 1) the qualitative and quantitative aspects of the telephone conversations between grandparents and grandchildren, 2) the type of activities the grandparents and grandchildren engage in, and 3) how and when conversation occur between children and grandparents.

Twelve persons (aged 30–55) were recruited from the users of a canteen serving about 300-400 white-collar employees, and asked to participate in a study concerning communication between children and grandparents. Those who were willing to participate were not compensated. The interviews lasted from thirty minutes to one hour.

Through interviews with parents the study indirectly involved twenty-five children (four younger than six years, thirteen between six and twelve, and eight older than twelve years) and thirty-nine grandparents (sixteen males and twenty-three females, nine aged fifty to sixty; twelve aged sixty to seventy and eighteen aged seventy +). Seven of the grandparents (as couples) lived far away from the informant's family, nine in the same region (less than three hours drive by car), and eight lived within the same city. About one third of the grandparents were retired.

	Age 0-6	Age 7-12	Age 13 ->	Sum
GRANDPARENT AND CHILD RELATIONS				
No of relations R	7	26	16	49
FREQUENCY OF CALLS				
Often	1	2	2	5
Seldom	5	23	10	38
None	1	1	4	6
DURATION OF CALLS				
Short	5	23	11	39
Long	1	2	1	4
None	1	1	4	6
INITIATOR OF CALLS				
Child	1	3	1	5
Others	5	22	11	38
None	1	1	4	6

Table 1. Characteristics of phone-calls. Calls between children and their respective grandparents characterised by frequency[1], duration[2], and initiator. The unit is significant child – grandparent relations.

Results

The interviews showed that children and grandparents do not use the phone frequently (see table 1). Most grandparents talk to their grandchildren less than once a fortnight, the phone-calls seldom last for more than five minutes, and further, grandparents or parents initiate the great majority of the calls. In the six instances where no phone conversations occurred, the grandparents and children lived close to each other and phone-calls were found irrelevant. In the five instances where the phone was used frequently, the two parties also lived in each other's neighbourhood. Here the phone was used to organise and schedule visits and common activities. These families met f2f rather often. Neither frequency nor duration seemed to increase as the children enter the teenage, and the parents still initiated the phone conversations.

	Age 0-6	Age 7-12	Age 13 ->
Outside playing			
Outside walking			
Meals			
Housekeeping			
Caretaking			
Drawing, painting			
Watching TV			
Watching photos			
Reading			
Board game, cards			

Table 2. Joint activities when grandparents and children meet f2f. Activities common in more than half of the families (dark), two or more (medium), less than two (light).

When meeting f2f grandparents and grandchildren accompany each other in a wide range of activities (see table 2). The meal has a special position as a social arena. Housekeeping and general care taking for smaller children are important joint activities as well. Apart from these, the most frequent indoor activities were board games, cards and watching photos. Smaller children were more often involved in mutual activities with their grandparents.

Talking between children and grandparents was closely related to these activities, and conversations concerning themes not related to the joint activity were almost non-existent.

"They sit together and talk about the drawings when she [the child] makes drawings" (grandparents and a six year old grandchild).

Discussion

When children and grandparents talk together in a f2f situation the communication seems to be submerged in the ongoing activity or their joint information milieu. The talking is fragmented and closely related to the activities being performed. This might explain the infrequent, short duration, phone calls between grandparents and children. We assume that for children physical interaction with people and things is primary and communication is something that is connected to this activity. This is in line with studies of children's learning [3]. Thus communication without joint activity, as telephone technology supports so well, might be bewildering and meaningless for children under a certain age. Further, since small children and grandparents do not have many common experiences, their conversation is bound to be tied to the concurrent, joint information.

STUDY 2: ALTERNATIVES TO THE PHONE

The first study indicated that the traditional phone conversation is not well suited to support interaction between grandparents and grandchildren. The second study investigates possible communication technologies that might alleviate this communication problem.

The literature has much to offer when it comes to suggesting suitable technologies, and recent studies have clarified that the public are interested in alternative communication technologies. In the Casablanca project [5] a number of social communication devices for the home were designed and evaluated. Consumer preference studies concluded that lightweight communication devices, e.g. lamps indicating presence, are desirable and will be well received. The purpose of the TSUNAGARI project [6] was to establish a feeling of social presence by signaling through everyday objects. The project used the Internet to

[1] Frequency. *Often*: Phone-calls occur more than once a fortnight. *Seldom*: Phone-calls occur less than once a fortnight. *None*: no phoning.

[2] Duration. *Short*: Phone-calls shorter than 5 minutes. *Long*: Phone-calls longer than 5 minutes. *None*: no phoning.

connect the households of family members who were living apart. An artificial flower, fitted with optical fibers, signaled different types of activity between the connected families. In a similar study [10] picture frames were used to signal the activity between the homes of elderly parents and their children's homes. The Casablanca project concluded that the "project has demonstrated that the space of new domestic communication technologies is enormous" [5], p 331.

In spite of these successes, some kind of voice carrier seems to be necessary for two reasons. Firstly, children, especially young children, have problems with written language, and secondly, voice has consistently proved essential in a wide range of tasks [11], also in developing trust. It is demonstrated that trust can develop online and that speech plays a significant role in that development [2,8].

Method

The study was done in two steps. First, three communication alternatives were constructed. Secondly, these alternatives were presented to a focus group to get a feel for their appeal to the relevant population.

Communication alternatives

Based on the findings from the first study, a literature survey and a brainstorming session, a large number of ideas were formed. Seven of the ideas were further outlined and described verbally using a scenario together with a sketch. The communication alternatives were then rated on four Likert scales; one scale for each of the aspects: market potential, user friendliness, complexity of implementation and robustness. The research group together with skilled marketing personnel did the rating. The three alternatives with highest mean rate were chosen for further study. These are outlined below.

Sharing the Day's Events. This alternative is based on the result from the first study that indicated that conversation was often related to the day's events and to watching photos and drawings. The main element is the ability to send pictures, drawings and videos to a fixed screen in the grandparent's home. The screen should make it easy to gather for a digital photo album session or simply send the photos over so the receiver could enjoy them whenever he or she wanted. The sketch did not include any voice as it was assumed that the phone system would be utilized.

Sharing Grandma's world. The background is similar to the former. However, in this case information in the grandparent's surroundings is used to support a joint information milieu. Different information sources, e.g. web cameras covering the main street of the city, local weather reports, local radio channels, and headlines from the local newspaper, are gathered and displayed in the children's household. A screen at the kitchen wall was suggested as a display unit for this information. The phone was assumed to be utilized for voice communication, in this alternative too.

Open audio zone. This solution was simply an open audio connection between the grandma's house and the children's house. It was specified as an open low quality duplex audio link transmitting salient background noise between the households, for instance slamming of the entrance door or a ringing phone. Such sounds are important context markers. Whenever wanted, a high quality connection could be established to initiate a conversation. The link could be placed in the dining room or another room frequently visited.

Focus group study

The informants (five women and three men, all middle aged) were recruited from families having both small children (age up to 12) and grandparents living at a distance. The informants were recruited by phone and were paid approximately $70 to participate. An experienced interviewer performed the interviews. The interviewer had no affiliation to the research group.

Results

The focus group agreed upon the importance of contact between children and grandparents, emphasized that physical meeting was the ideal way of social interaction and that more contact would be positive. Further they pointed to the voice telephony as the most frequently used communication channel between grandparents and grandchildren. They also confirmed our observations from the first study that phone conversations do not function well between them as indicated by the following quote:

"Youngsters and elderly use the phone differently. The contact is not always good."

The focus group found the "*Sharing the day's events* " – alternative most appealing of the three. They anticipated that the grandparents wanted short videos from a given event, not the whole birthday party.

"I'd like to send snapshots from junior's football match immediately to grandma. I'm sure she would call back within a minute and ask for more information".

The alternative "*Sharing Grandma's world*" did not make sense to the group at first, illustrated by the next quotations:

"Can't you find these things [snapshots from other towns] by typing on your PC?"

"Being already informed of the sunny weather, why should you call?"

Throughout the discussion the comments became more positive;

"It might provide a context for the phone calls".

The "*Open audio zone*" was not appreciated. They found the solution intrusive:

"During the day you have conversations not meant for others".

"I can't bear the thought of having my mother in law online all the time".

They also imagined sounds from another household to be distracting:

"I believe it would be a source of noise".

"The sound quality would probably be rather bad".

However, they saw the possibility of involving several persons in the conversation.

Discussion

The second study confirmed the conclusion from the first; the telephone is not a very suitable technology for supporting interaction between grandparents and grandchildren, and contact between grandparents and grandchildren ought to be better. Further the study shows that the parents appreciate communication technologies that mainly make a conversational context available. The study also underscores the importance of privacy and non-intrusive communication technologies as our informants reacted quite strongly to an always-open voice channel. This is in line with previous research [7,9].

CONCLUSION

The studies presented here indicate that children and grandparents need a common context for their conversation, that telephony does not offer this context, and that systems offering such context will be well received by distributed families, supposing that privacy concerns are met.

The present research will be continued by interviews and observational studies of children and grandparents. This work might include observations of daily life settings in grandparents' house when children are visiting, and studies that collect the use of telephony, and perhaps other medias as e-mail, cellular phones and short message systems (SMS), more accurately.

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