Social media are everywhere

Talk to a thousand ‘friends’

Computer-supported gossip

... is that all there is?

What’s missing?

Whirlwind tour of a decade of research with distributed families

From an ancient time:
Before smart phones
Before app stores
Before ipads
Before social networks

... But the needs are still there.

interLiving:
interactive
intergenerational
interfaces
for Living together

European Union Disappearing Computer Initiative

in situ research lab, INRIA & Université Paris-Sud
InterLiving Project

Three-year participatory design project
- 6 distributed families
- over 70 participants
- France & Sweden

Observation, interviews, design workshops, working prototypes, technology probes

User-centered participatory design

Multiple perspectives on what people need and want

Scientific perspective
- Collect data
- Analyze data
- Inform designers

Design perspective
- Get design inspiration
- Reflect on daily activities
- Redefine the design problem

Engineering perspective
- technical trade-offs
- ensure that technology works “in situ”

Research question

Not
- “What technologies should we create for the home?”

but rather
- “What do distributed families really want?”

Shift in emphasis
- from technology-centred
to family-centred

Helped us to re-articulate the design problem

So, what do families really want?

NOT
- to be connected to everyone in the world

BUT
- to stay in touch with close family and friends

Values:
- simplicity
- aesthetics
- interconnection
CommApps: Communication Appliances

Support for:
Lightweight, not complex interaction
Peripheral plus focused communication
Understandable, not abstract metaphors
No wires, no buttons, no nonsense

Marie’s idea:
“When it rains, I open my umbrella and I’m automatically linked to my best friend.”

Historical accidents:

Why can’t I leave a delayed voice message via my phone?

Why must I switch from my phone to SMS to twitter when I’m talking to you?

Communicate with a few people you know well
simple-to-use, single-function devices that let people communicate, passively or actively, with small groups of remotely-located friends and family

Wouldn’t it be better to create a small number of communication channels dedicated to a few family and friends?

… a real “you” tube.
CommApps: Communication Appliances

Communication channels are first-class objects:
- set up once
- stay connected
- modifiable
- link people or places

Avoid apps, exchange data
- share sound, images, video, text, gestures, touch, activity ...
- shift from focused attention to peripheral awareness
- transition from asynchronous to synchronous communication
- permit secure archives, without spam
- focus on personal not copyrighted data

MessageProbe

Handwritten notes on a tablet screen
Synchronous or asynchronous
Zoomable interface
All notes shared among all households
Temporal or selected order

MessageProbe conversations between 'grandpa' and kids
message? conversation? game?

MirrorSpace

Handling privacy concerns:
Distance to mirror controls
video image & communication

Proximity sensor, image analysis
Far away: blurry image
Approach: crisp image
MirrorSpace

Handling privacy concerns:
- Distance to mirror controls
- Video image & communication

Proximity sensor, image analysis
Camera placed in center of screen

MirrorSpace

Exhibited at:
- La Villette
- Pompidou Centre

Family members get much closer than strangers...

VideoProbe

Images captured by a video camera
- 3” without motion = 1 image

Image archive
- Shared between households

"We’re going away for a week
Happy Vacation
Everybody!!"
VideoProbe

Images captured by a video camera
3 seconds without motion = 1 image
Image archive
shared between households
View images with a remote control
Images fade unless explicitly saved

Testing in the home

We installed several communication appliances in the families’ homes, over weeks and months
(Sweden, France)

Why don’t CommApps exist today?

Setting up the network is too hard
No plug-and-play infrastructure
No simple configuration interface

Why don’t CommApps exist today?

Setting up the network is too hard
No plug-and-play infrastructure
No simple configuration interface

Users need an easy way to create and maintain tiny, dedicated, peer-to-peer networks that link comm apps.
Key insights

Each person has a small number of intimate social groups
Groups are fairly stable over time
Controlling connections must be lightweight
Communication within groups should be private

Design Requirements

Simple:
Easy for a grandmother to use with her 8-year-old grandchild
Tangible:
Lets people visualize and manipulate who is connected
Flexible:
Easy to change configuration and access rules
Secure:
Private and secure communication and storage of shared data
Standard:
Common interface for all communication appliances

FamilyNet

Simple:
Direct manipulation interface that handles complex scenarios
Tangible:
Physical cards with RFID tags
Flexible:
Multiple layers of control
Secure:
Public key cryptography and peer-to-peer networks
Standard:
Interface decoupled from communication appliance

FamilyNet vision

Separate information exchange from managing network connections
General architecture
FamilyNet cards
FamilyNet module in each communication appliance
FamilyNet meter in each household
FamilyNet servers on the Internet

FamilyNet cards
RFID tag stores a cryptographic key and some extra information

- Allow irreversible disabling of access rights
  - unlocked -> locked
  - can copy -> no copy
  - can admin -> no admin
- Punching out the access rights physically changes the tag

Other possible technologies to be explored

Pre-configured cards

Exchanging cards = creating network
Creating a link = placing a card

Simple creation of overlapping networks

Red

Green

Alternative: Telebeads

Teens create their own jewelry
interactive beads that
identify friends
Rings, bracelets, ‘wearables’

More recent comm apps

A common peer-to-peer infrastructure would enable a wide variety of communication appliances

WeMe  Shared abstract and intentional patterns
NightBoard  Ambient or controlled dynamic images
MissU  Shared music and ambient sound
A2o  Shared music
Marker Clock  Activity awareness
ICI-TV  Ambient communication
Buena Vista  Multiscale communication
WeMe

A "Conversation Piece" that supports multiple engagement and multiple interpretation.

Bubbles move in response to ambient sounds (local and distant)
1-3 people per household can create patterns

Nightboard

Remote couples stay in touch

Input:
- movement detector
- laser pointer

Display:
- projection on the ceiling

Supports both direct and implicit interaction

MissU

Sharing 'Empty Moments' between remote couples
Private 'radio channel'
- Implicit: shared ambient sounds (dual control)
- Explicit: shared music playlists

Exploration with 13 couples via technology probes
Social Science, Technology & Design results
Shared music player
20-sided icosohedron
triangular speakers

Interaction:
movement in space

Play & share
music

with Sony CSL

Marker Clock

Peripheral awareness for seniors at home
Monitoring vs. Peer-care
Implicit sharing: movement on clock face
Explicit sharing: leaving markers
Field tested with seniors in France
Easily interpretable by people who know each other’s rhythms and routines

ICI-TV

Goal: to help seniors
remain independent while living at home and
stay in touch with close family, friends and care-givers

ICI-TV will provide:
services via a television and settop box
an intuitive, easy-to-use interface
enriched bi-lateral communication via dedicated television channels

ICI-TV is funded as a technology transfer project by Digiteo in conjunction with a CEA-based startup, Praesto
Buena Vista

Communication channel is a first-class object
- no apps, just data
Supports multi-scale communication:
- shared activity traces
- asynchronous text, images, video
- synchronous live connection
Comm Apps ... and musubi?
Focus on dedicated, protected communication channels
- available across devices
- person-to-person and place-to-place ... or mixed
- supporting the most important human relationships

Questions?
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FamilyNet and Comm Apps:
An Alternative to Facebook for Staying in Touch
Wendy Mackay, INRIA

Today's social media focus on creating ever larger networks of 'friends', many of whom have never met. We are interested in the opposite problem: how to better connect people who already know each other very well. We describe a decade of participatory design research in which we created dedicated 'always on' communication channels for exclusive use between pairs or small groups of family and close friends. A key insight was to separate network management from the information communicated. Our goal was to create an interface simple enough for a 70-year old grandmother and her 7-year-old grandson to set up without help from Dad. We created FamilyNet, a tangible interface for creating and maintaining dedicated peer-to-peer communication channels. We also created a wide variety of Comm Apps that support both peripheral awareness and focused communication, ranging from the serious, such as helping the elderly to 'age in place', to the more whimsical, such as providing remote-awareness for couples who miss each other.

Bio
Wendy E. Mackay is a Research Director at INRIA Saclay – Île-de-France where she heads the In|Situ research group in Human-Computer Interaction. Formerly Vice President of Research for the Computer Science Department at the University of Paris-Sud, she is now on sabbatical as a Visiting Professor at Stanford University, until 2012. She received her Ph.D. from MIT and created a multidisciplinary research group at Digital Equipment that produced the world's first commercial interactive video system (IVIS), a pre-Hypercard multimedia authoring language and over 30 multimedia software products in the 1980s. She then created a research group at Xerox PARC's EuroPARC lab that was among the first to explore media spaces, tangible computing and mixed reality interfaces. She is a member of the ACM CHI Academy and has published over a hundred research articles in the area of human-computer interaction. She has served as Chair of ACM/SIGCHI, co-editor-in-chief of the journal IJHCS and on the editorial boards of CACM, ACM/TOCHI and RIHM, as well as program or associate chair of ACM CHI, UIST, CSCW, DIS, IUI and Multimedia. She will chair CHI'13 in Paris, France. Her research interests include co-adaptive instruments, tangible computing and multi-disciplinary, participatory design methods.