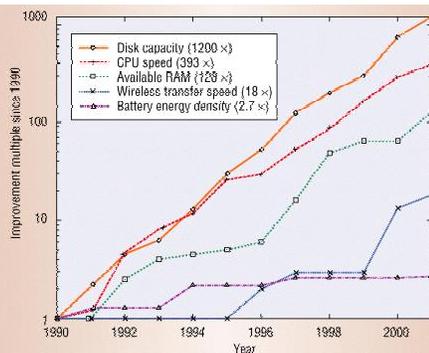


PHILIPS

Engineering the user experience

Boris de Ruyter

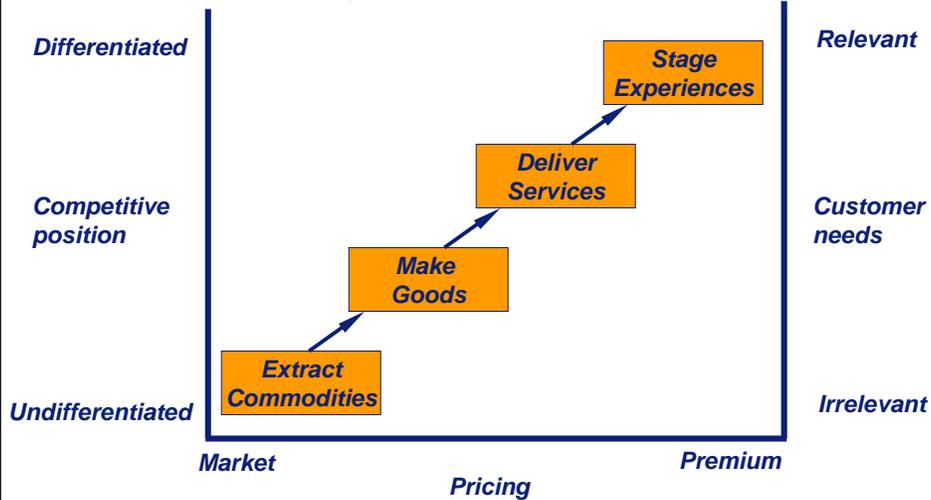
PHILIPS



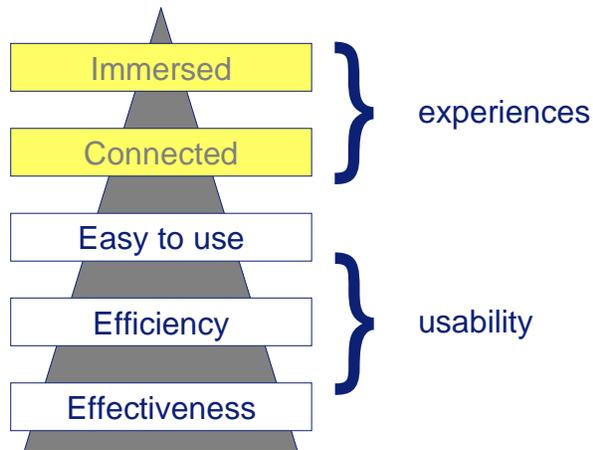
The ongoing miniaturization allows integration of electronics into peoples' environments

The Experience Economy

Pine and Gilmore, 1999

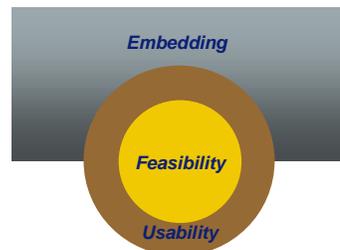


From usability to user experiences



HomeLab

a laboratory for Feasibility and Usability Studies in Ambient Intelligence (1998)





- 34 cameras and microphones
- LON system
- Observation system with scoring and control software
- Gigaport wide-band internet

Philips Research, Boris de Ruyter, 16/11/2004

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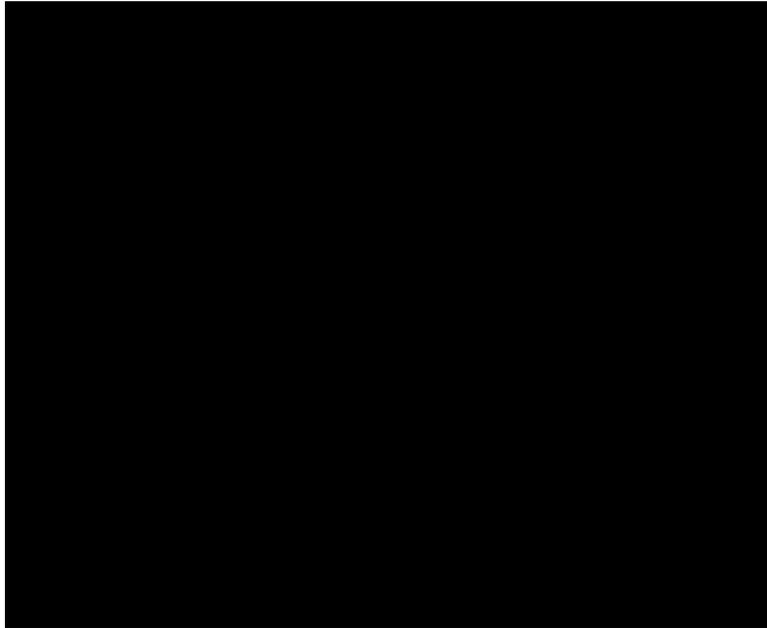
Projects



WWICE
(Mark Verberkt)



CE, SC



Ambient Lighting
(Elmo Diederiks)



Lighting



*Addressing interpersonal communication
needs through ubiquitous connectivity:
home and away*
(Philips Research, TU/e, Telenor)



N. Romero & J. van Baren (USI programme, TU/e)
P. Markopoulos (Industrial Design, TU/e)
B. de Ruyter (Media Interaction, Philips Research)
W. IJsselsteijn (Technology Management, TU/e)

Awareness systems are computer mediated communication systems that support two or more individuals to stay aware of the activities of the other, with minimal effort over prolonged periods of time

- Aim of the project:
 - Design an asynchronous awareness system to help geographically separated family members to stay in touch
 - Assess the affective benefits and added value of such a system

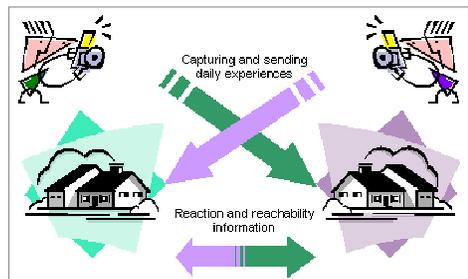
- Investigate the experience of **Connectedness**: positive emotional experience that is characterized by a feeling of staying in touch within ongoing relationships
- Problems with most studies:
 - results are based on WoZ or paper prototypes
 - remain speculative about the user benefit
- Our approach:
 - Requirements study
 - Laboratory study in HomeLab
 - Field study

- Requirements study:
 - What are reasons for communication between family members, and why is it valued?
 - Which communication means currently address the need to stay in touch, and how are they experienced in use?
 - Which user needs should be considered for future communication systems?
- Participants: 3 family clusters (13 people) and 4 additional interviewees
- Interviews: Attitudes towards communication, Technology Tour, Guided Speculation
- Diaries

Findings:

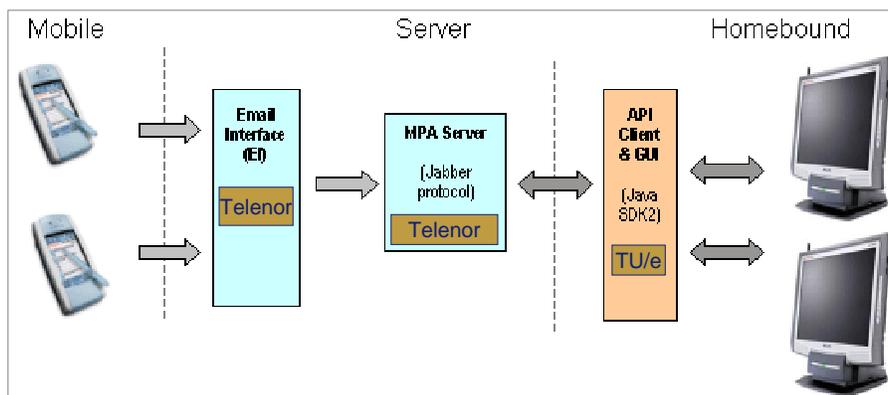
- Communication between family members is the most valued
- Social and emotional contacts give rise to very positive feelings
- Most contacts are conducted by synchronous media and timing is crucial for the success of the communication
- Strong expectations and obligations
- Personal effort is highly valued
- Home environment is important
- Users want to share concrete visual information
- Most successful social communications were initiated by individuals having something (non practical) to tell

To-tell list

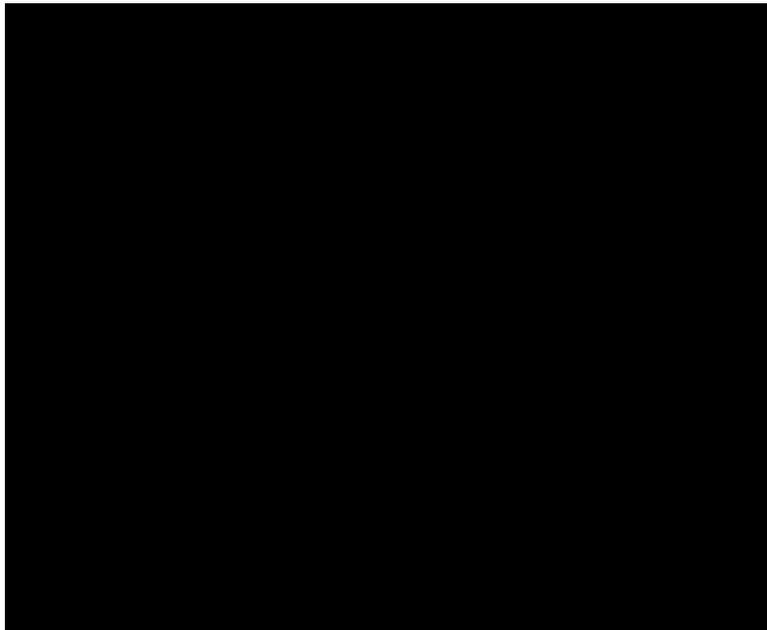


- It offers the opportunity for people to become more aware of each other's activities and experiences and therefore more involved in each other's lives
- It might trigger and enhance existing ways of (synchronous) communication
- It might provide conversation openers and enhance the feeling of connectivity

Infrastructure



Homebound device



Assessment

- Laboratory (Homelab) test
 - Usability test
 - Technical problems
- Field experiment
 - Does it help people stay in touch?
 - Is social presence experienced?
 - Are the assumed Affective Benefits experienced?

HomeLab test

- Method
 - Participants: 5 clusters of family members or friends (11 adults, 8 children)
 - Procedure: One person in HomeLab, others to museum. Participants in museum send pictures to person in HomeLab.
 - Usability test: observation, interview for the HomeLab person
 - Peer tutoring + Focus group
- Results
 - Concept and interface are very understandable
 - Participants liked sending pictures (average 12, while 6 were requested)
 - Difficult to imagine how they would use it in normal life

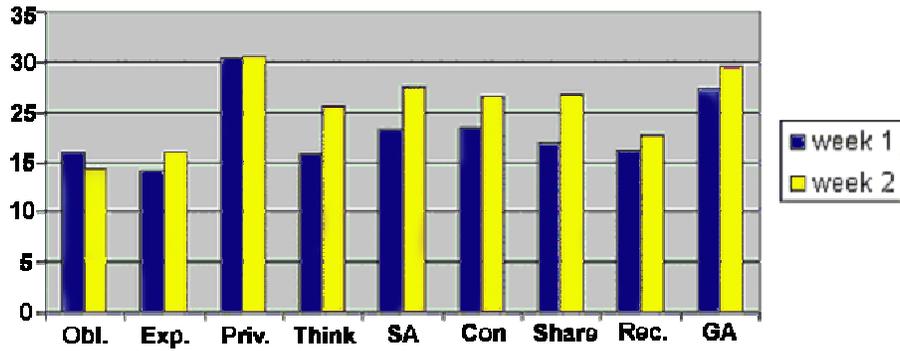
Field test

- **Method:**
 - Two weeks: first week without technology, second with
 - Two families with one home bound and mobile device each
 - Data logging and questionnaire data (IPO-SPQ & ABC) was collected
- **Results:**
 - Homebound Device: 46 min./day
 - Mobile device: 15 msg/day
 - Users were positive about the Easy of Use and indicated a higher level of involvement
 - Users indicated that there were more starting points for conversation
 - The social presence questionnaire did not provide significant differences between the two weeks of data collection

The Affective Benefits of being Connected questionnaire

- **Control**
 - Obligations
 - Expectations
 - Privacy
- **Staying in Touch**
 - Thinking about each other
 - Situational Awareness
 - Connectedness
 - Sharing Experiences
 - Recognition
 - Group Attraction

The ABC results:



- No differences in control scales
- Significant differences in nearly all Staying in touch scales



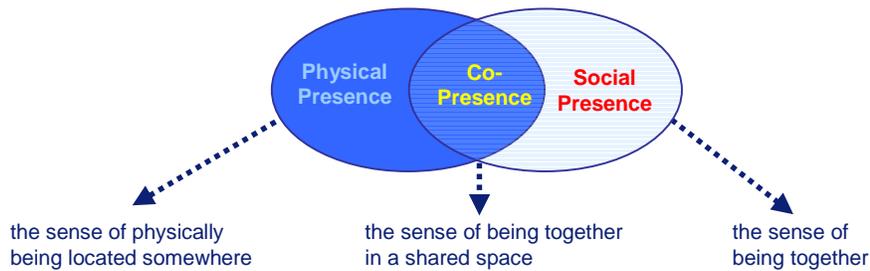
Social presence and group attraction: exploring the effects of awareness systems in the home

(Philips Research, TU/e)



Aim

To prototype and evaluate an application for creating the feeling of being together (**social presence**) and feeling member of a group (**group attraction**) while consuming the same TV content from different locations.



Research question



- Can social presence and group attraction be established respecting privacy by using **abstract** activity representation of the remote site?
- Expected advantages of abstract background representations: **(Pedersen & Sokoler)**
 - shield for privacy
 - require little user attention
 - require limited network bandwidth

Method



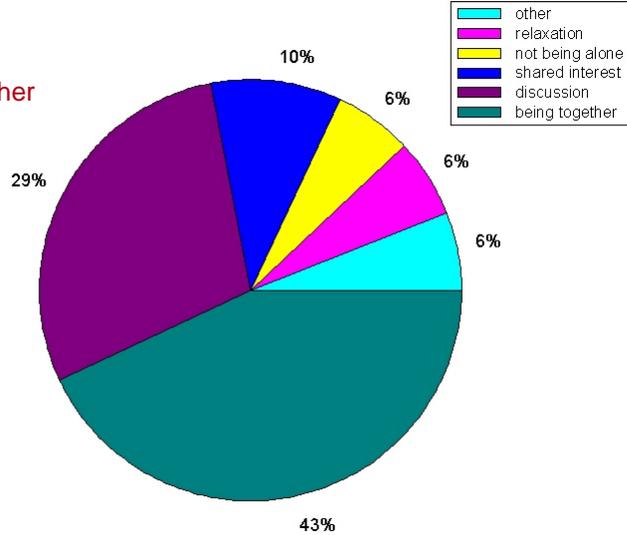
- materials
 - two rooms in the HomeLab equipped with webcam & flat TV and connected via LAN
 - IPO-SPQ (de Greef & IJsselsteijn)
 - Group Attitude Scale (Evans & Jarvis)
- subjects
 - 33 subjects in groups of 3 (split 2-1)
 - subjects in a group are friends and share a preference for soccer

Method

- experimental design
 - three conditions: full video, sketches, no visualization
 - no remote audio information in any condition
 - within subjects design
 - questionnaires (IPO-SPQ & GAS) after each condition
 - post experimental interview
 - pilot experiment was conducted to validate some assumptions of the visualization

Results

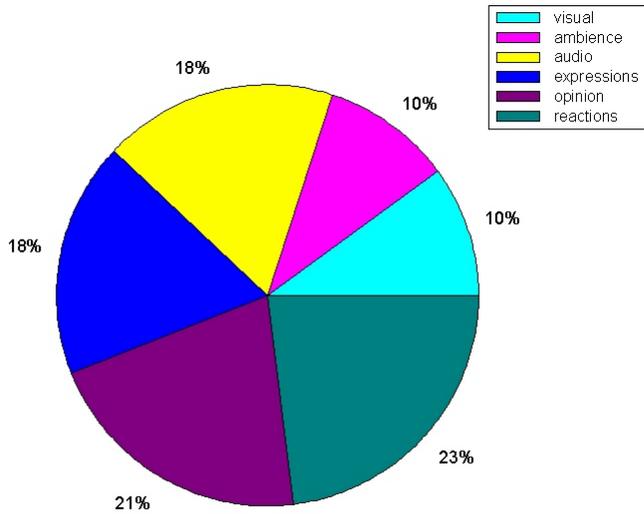
drivers to watch together



the feeling of being together and discussion on content are perceived as the most important drivers for watching TV together

Results

important info about remote site

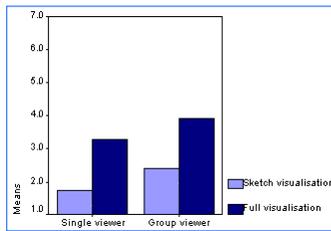
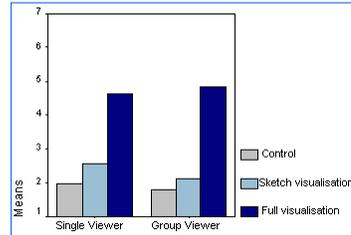


To some extent, the sketch visualization supports conveying information about the ambience and reactions from the remote site

Results

questionnaires

Social presence increases with the experimental conditions ranging from no, to sketch- to full visualization



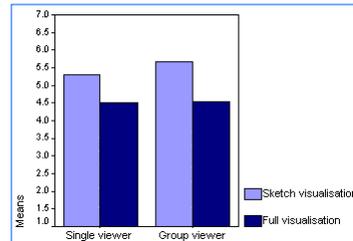
participants felt more watched during the full- versus the sketch visualization condition

Results

questionnaires

With the sketch- and full visualization, there is no difference in Group Attraction for both types of groups

More attention was paid to the TV content in the sketch versus the full visualization condition



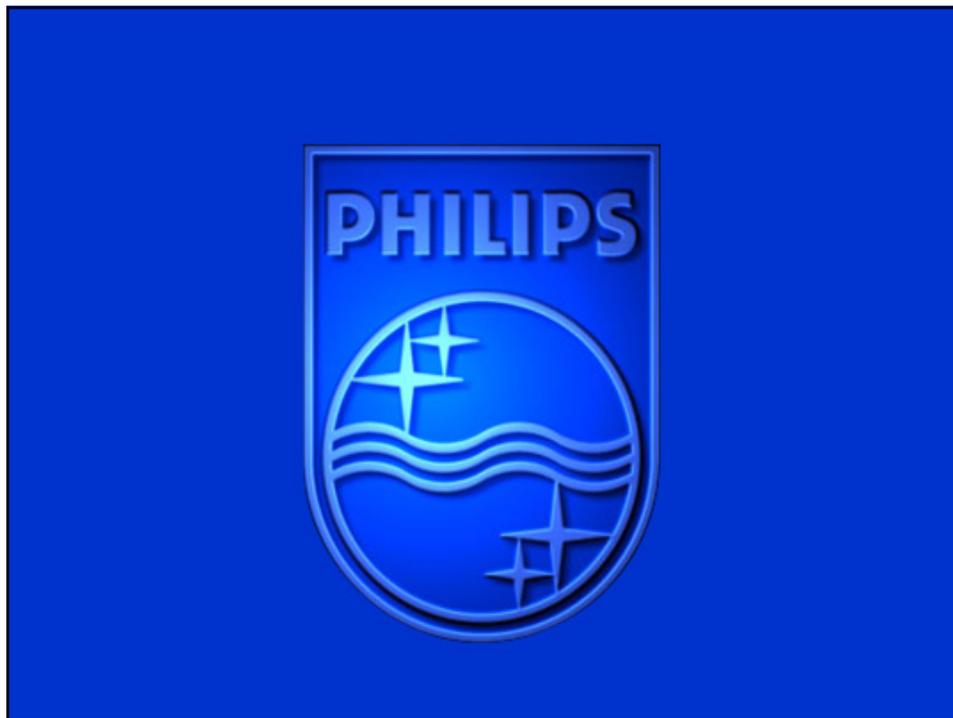
Conclusions

- Abstract representations of remote environments offer user benefits in terms of social presence and group attraction without violating privacy
- Additional abstract information (such as the acoustic conditions) may enhance the experience of being together
- The level of required social presence to be established needs to be identified
- Metaphors are needed to support people in controlling the “social presence” sessions

Conclusions

Some conclusions...

- Technology is evolving rapidly
- Although basic usability remains a challenge, the emphasis is on user experiences
- New research methods and tools are needed
- Social presence and awareness systems offer great opportunities for introducing networked systems



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