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Negotiating Presence in Absence

Contact, Context and Content

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Negotiating Presence-in-Absence: Contact, Content and Context

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ABSTRACT

On the basis of a longitudinal field study of domestic communication, we report some essential constituents of the user experience of awareness of others who are distant in space or time, i.e. presence-in-absence. We discuss presence-in-absence in terms of its social (Contact) and informational (Content) facets, and the circumstances of the experience (Context). The field evaluation of a prototype, 'The Cube', designed to support presence-in-absence, threw up issues in the interrelationships between contact, content and context; issues that the designers of similar social artifacts will need to address.

Author Keywords

Presence-in-absence, asynchronous, intimacy

ACM Classification Keywords

H.5.3 Group and Organization Interfaces — Asynchronous interaction.

INTRODUCTION

Presence-in-absence is our subjective sense of social others whilst we are separated from them by time or space. We can be present-in-absence when we discuss task details with work colleagues over the telephone, still achieving a strong sense of 'being there'. When we write a letter to a loved one, and we reflect on our feelings for them, we have the subjective experience of being present-in-absence. If, whilst writing, we imagine our loved one receiving the letter and then thinking about us whilst they read it, we also experience presence-in-absence.

Presence-in-absence is challenging to conceptualize, study and support. As a concept it is teaming with apparent contradictions and tensions, after all 'present' and 'absent'

are often used exclusively. Clearly, communication technologies in all their forms (including letters, telephony and the internet) aid in bridging the gulf between physical absence and social presence. However, we will show that communicating, merely being 'in contact', is neither necessary nor sufficient in achieving a compelling experience of social presence. In this paper we discuss presence-in-absence, what it is, how we studied it, and how to design systems that might support it.

From Presence to Presence-in-Absence

The foundational term 'presence', as related to technology, was first used by Marvin Minsky [11] in his seminal article on Telepresence, where he writes "*The biggest challenge to achieving telepresence is achieving that sense of 'being there'*". Over twenty years later IJsselsteijn et al [6] were still able to note the lack of clarity that related to its conceptualization, measurement, determinants and effects.

Lombard and Ditton [10], after an extensive review of the literature, distinguished between physical presence, the sense of being located in a remote physical space, and social presence, the sense of togetherness, of an unfolding social union with remote others. If physical presence gains clearest support via 'content oriented' technologies, e.g. VR, remote manipulation technologies, TV etc, then social presence demands 'contact oriented' technologies, e.g. letters, telephony, email and messaging. Consistent with this physical presence/content technology and social presence/contact technology association, Lombard and Ditton suggest that the intersection between physical and social presence, i.e. co-presence, has received best support from technologies that converge content and contact capabilities, e.g. video conferencing, collaborative virtual environments (CVE's) and the, as yet to reach even modest rates of adoption, videophone.

We prefer presence-in-absence, though equivalent to Lombard and Ditton's use of the term social presence, as it highlights the distributed nature of our interest, that 'we' or 'they' are physically separate. A great deal of research has focused on its understanding and support, from variations of video conferencing, to tangible and ubiquitous solutions.

Supporting Presence-in-Absence: Previous Work

Typical of the video conferencing paradigm, the Digital Chatty Window [9] is a niche video and voice capable extension, designed to run on a PC platform. Providing concrete hi-fidelity representations of the communicating actors, via video feed, is useful for some forms of communication, e.g. complex goal oriented work activities where concision and clarity are important, but has been shown to be at best unnecessary and at worst disruptive of other communicative acts, e.g. playful or intimate exchanges between strong-tie partners [14]. Other researchers have worked to support presence-in-absence in playful and highly expressive ways, using tangible materials that are evocative and employing user interface mappings that are literary, rather than didactic [2].

The Love Eggs [7] is a one-to-one voicemail system embedded in two tangible devices, each resembling eggs. A communicating partner is able to send messages to his or her loved one by speaking into one egg, thus causing the other egg to rotate. The receiving partner can listen to the recorded message simply by picking up the egg. Though a tangible input device, the output medium remains the hi-fidelity human voice.

In contrast to techniques and appliances that, focusing on the content of the exchange, rely on rich media, an interesting cohort of systems aims to support contact, sometimes provocatively at the expense of content. Touch remains a relatively unexplored yet emotionally vital aspect of much intimate communication [14] and a growing class of systems employs haptic interfaces [2,4]. The hand holding device [7] allows distributed intimate partners to hold hands by registering the pressure that an intimate other applies to one device with his or her hand, synchronously communicating that pressure to the linked device in the hand of the other partner.

Further emphasizing contact over content, others have moved away from natural language arguing that it is restricted in its capacity for communicating affective issues, moods and emotions for example. The Gumball Machine [7] lets remote partners display affection through gift giving [12], remotely dispensing confectionary. The receiving partner, whilst enjoying the confectionary, can reflect warmly on the gift and what it means for their relationship.

Other systems make use of private codes, or simplistic and more or less arbitrary communicative signs such as the scent of essential oils [2], the movement of beads on an abacus [7] or gleams of light on a digital display [1,9]. Sixth Sense lamps [13] use light to represent remote physical activity. When activity is registered, the intensity of the light emitted changes. The information communicated through these systems is of value to users who occasionally glance at them, but little is lost if no one registers the change and thus they facilitate a form of ambient awareness, contact oriented systems often exploit the 'here and now' relevancy of communication, allowing communicated messages to fade away over time. The purpose of the message, to encourage contact not exchange content, questions the value of commonly sought message persistency.

We are interested in supporting the experience of presence-in-absence within intimate strong-tie relationships, for example those between parents and children, between lovers and between siblings. Our previous work [14] indicates clearly that coded languages are a persistent feature of such intimate communication, and that a profoundly held shared world view prevails, to a degree that is inconceivable in the more commonly examined loose-tie relations, as might exist between work colleagues. Though inspired by previous work that, in using codes, hints and suggestions, preferences contact over content [1,2,7,9,13], we examine the potential and pitfalls of contact biased devices, surface the secondary potential of content oriented facilities, and stress the importance of the circumstances of presence-in-absence.

UNDERSTANDING PRESENCE-IN-ABSENCE: APPROACH AND FINDINGS

Previously [14] we reported on the collection of forty-two weeks of ethnographic field data, across 6 intimate couples, using a variant of cultural probes [3]. We have reported elsewhere on the user experience of intimacy [14]. Though presence-in-absence was briefly mentioned in that earlier work, below we unpack the concept further.

The primary data consisted of diaries, scrapbooks, photographs and various self-reports (poems, descriptions of significant incidents) provided by 6 families over a 7-week period. Secondary data included interviews, and focus groups conducted with all the families assembled.

Contact e.g. reciprocity	**Content** e.g. expressiveness	**Context** e.g. public/private
Common ground: *a single shared object*	Code languages: *symbol based communication*	Private: *closed communication channel*
Staying in touch: *quick and easy messaging*	Personal effort: *facility to adapt codes and evolve communication*	Unobtrusive: *asynchronous, no prompting*

Table 1: Selected elements of Presence-in-Absence

Two of the researchers interpreted the data, selecting episodes of mediated communication in general, and presence-in-absence in particular. The researchers worked independently, interpreting the probe data, developing and refining the analytic themes summarized below. A variant of member checking occurred, in which the new theme structure was commented on, and then refined, by the ethnographers involved in the earlier data collection. The diaries formed the major resource for analysis. In situations

where the diaries were unclear or ambiguous, the other sources were consulted.

Table 1 presents a sample of the thematic hierarchy of presence-in-absence, illustrating three themes and six constituent elements, each with associated exemplar requirements *(shown in italics)*.

SUPPORTING PRESENCE-IN-ABSENCE: THE CUBE

To further investigate the design and use of personal technologies for intimate communication we developed and evaluated a functional prototype, the Cube (Figure 1). The Cube, a networked client-server application implemented in Java 1.4.2, runs on any Internet connected computer with Java Runtime Environment, such as the Windows XP Tablet PC as illustrated in Fig 1.
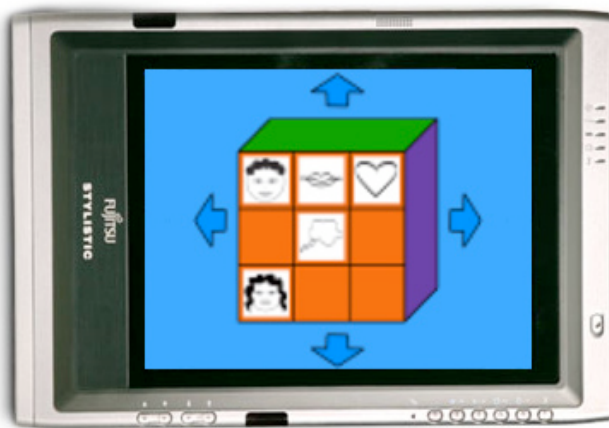

Figure 1: The Cube

The Cube is as a lightweight asynchronous messaging system enabling physically distant intimates to communicate via the Internet through personalized and combinatorial graphical codes. The codes are laid out on the surface of a shared virtual 2½D cube. Composing a message involves rotating the cube to reveal one of six sides and then placing one or more symbols on the three-by-three canvas. When a new message has been composed, a notification can be posted via email or SMS to the remote partner, who can then access the Cube to review and reply to the message.

The Cube was designed to reflect selected elements of Presence-in-Absence outlined in Table 1. The Cube facilitates reciprocal contact by supporting *common ground* among the communicating partners through a single shared object, and *staying in touch* with an absent partner through the provision of a quick and easy messaging channel. Inspired by board games (such as Scrabble™ or arranging refrigerator magnets with words or letters imprinted upon them), which allow people to be expressive despite the constraints of a defined set of rules and restrictions, the

Cube facilitates *expressive content* through the use and ongoing evolution of a shared symbolic vocabulary.

CUBE EVALUATION: APPROACH AND FINDINGS

Preferring extended field studies over short-term lab evaluations [8], we evaluated the Cube in established domestic settings. Five couples (N=10, 22-28 years old) participated, and each had been in their current relationship for at least 2 years. In each case the Cube was installed for a 6-week period as a technology probe [5], enabling automated logging of for example, logon/off and message composition times. Additionally during each 6-week period we conducted three interviews with each couple.

Most couples used the Cube throughout the six-week period and sessions typically involved a series of symbol placement and removal, and rotations of the Cube. A typical use session involved 4 to 21 rotations (μ = 11 rotations/session), placement of 2 to 5 symbols (μ = 3.5 symbols/session), and removal of 1 to 5 symbols (μ = 1.5 symbols/session). No couple used the Cube on a daily basis and with the exception of one enthusiastic couple, they each created only a few new symbols.

The evaluation foregrounds both opportunities for and limitations of the Cube and highlights the difficulty of meeting the diverse needs for contact and content.

Participants were enthusiastic with respect to the potential of the Cube to support some aspects of presence-in-absence. All the participants were positive in regard to the value of personalized symbolic language, and the Cube's implementation of unobtrusiveness and privacy. Participants commented that the Cube provides a palpable sense of their partner's mood and state of mind; they felt they knew each other so well that interpreting the emotional context of a message was not something they needed technical assistance with, and a broader-band conduit was not necessary. To our participants, personalized symbols were concise and lucid expressions of their emotions.

Meeting the sometimes conflicting needs for social and informational activity involves keen design. We will highlight just two examples from our data where we failed to strike an appropriate balance; the first illustrates a relation between contact and context, and the second contact and content:

• Though participants agreed the symbolic language provided by the Cube, and later adapted in use, was powerfully expressive, the Cube was nevertheless used selectively in mediating presence-in-absence. Participants did not use the Cube at times of tension, when things in the relationship were not going smoothly. In these circumstances, several couples felt that a telephone call would provide a better impression of their partner's state of mind. Participants folded the Cube into a broader array of communication options, recognizing the Cube's advantages in mediating 'phatic' communication in positive intimate exchanges, but preferring other devices

for resolving contact breakdowns, or mediating more intensively content oriented exchanges.

• Our earlier field work had indicated that intimate couples were not only willing to expend effort in maintaining presence-in-absence, but also that such expenditure was a feature of the exchange; intimate couples continue to adapt their shared languages and that effort in adaptation reinforces their sense of a shared mission. However, the Cube asked too much of this content creation. Participants found language manipulation demanding, and consequently their motivation to use the Cube decreased over the six weeks of data collection. Though keen to stay in contact with each other, and complimentary about the Cube's general contribution to this, the required personal effort was excessive.

In summary, despite these reservations, the Cube did provide our participants with a feeling of being in touch, it supported lightweight and frequent exchanges, and the frequency of the exchange was a critical variable in influencing that special sense of being there.

CONTACT, CONTENT, CONTEXT

Some interesting challenges emerge when devices are optimized for contact over content, and especially when that contact occurs in the context of strong-tie relations. Communicative acts that occur between partners that share a commitment to the importance of highly reciprocal exchanges, and that have a profoundly shared understanding of the world, appear to be most effectively supported by technology that is:

• *Information light:* i.e. does not try to duplicate content that the partners already share, but leverages off that shared understanding and;

• *Narrow-band:* i.e. does not try to maximize the communication bandwidth between the partners, but relies on their joint ability to flesh out narrow-band messages into rich and meaningful exchanges.

We believe there is a place for 'contact over content' devices but that, if these devices are to enter into persistent use, there are key usability (e.g. appropriately containing the effort needed in language adaptation without rendering the activity trivial) and broader use (e.g. phatic technology will be used in conjunction with, not instead of, existing communication alternatives and phatic exchanges will be entwined with informational pursuits) issues that need to be better understood.

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