Projected Realities
Conceptual Design for Cultural Effect

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ABSTRACT
As a part of a European Union sponsored project, we have proposed a system which aggregates people's expressions over a widening network of public electronic displays in a massive Dutch housing development. Reflecting ideas from contemporary arts as well as from research on media spaces, this is an example of a conceptual design intended to produce meaningful effects on a local culture. In this paper, we describe the methods and ideas that led to this proposal, as an example of research on technologies from the traditions of artist-designers.

Keywords: design research, conceptual art, collaborative systems, awareness

INTRODUCTION
As a part of the two-year, European Union funded Presence project, we are working to find innovative interaction techniques that can help increase the presence of the elderly **within their local communities.**

One of the communities we are working with is the Bijlmer: a large planned housing development just outside Amsterdam in the Netherlands [see 2]. Built in the early 70's, it is made up of dozens of buildings, each 10 stories tall and averaging 1.5 km long, set in green parkland with canals, ponds, fields and forests. The Bijlmer has an extremely poor reputation in the Netherlands--only partially deserved, we now believe-with widespread unemployment, drug abuse, and crime.

Projected Realities
After a year of work, we eventually arrived at a proposal for the Projected Realities system, a network of electronic displays with which the elders would facilitate people in expressing their opinions and images of the Bijlmer over increasingly larger areas.

The system would involve four main components. Commercial *scanners* would be reconfigured into furniture, for transport on trolleys, or to hang on walls. Elders could **use** the scanner devices to mediate the collection of digital images from local inhabitants. These images-perhaps of photographs, objects, or faces-would be stored in a central database, along with a numerical representation of **their** emotional content.

Mains radio devices **would be** small displays used at home by elders and other citizens to access images and slogans transmitted from the central database via the existing power lines. The attitudes expressed by their choices would be registered implicitly, or they might also register them more explicitly.
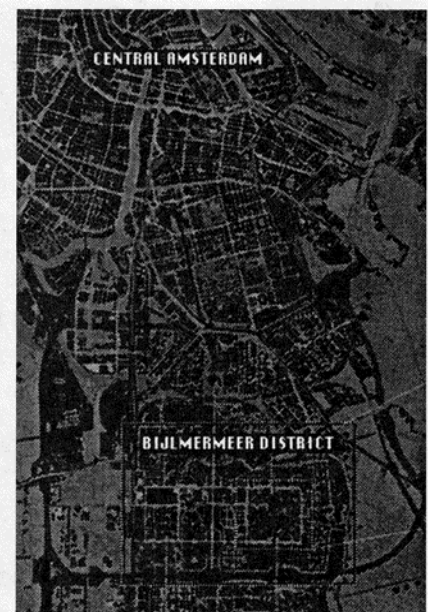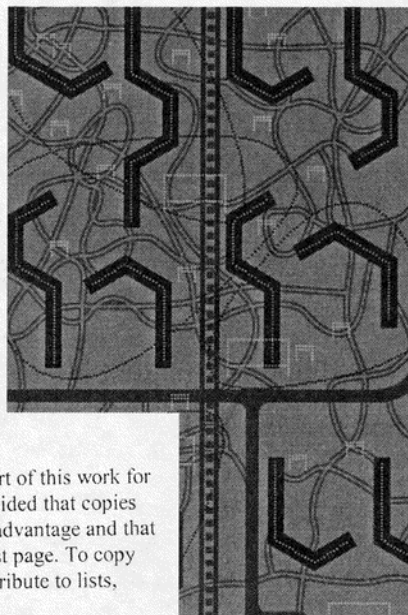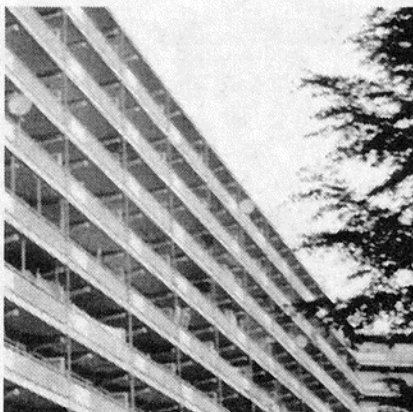
Bijlmer overview   *Location of the Bijlmer*

Slogan furniture, mainly in the outdoor areas of the Bijlmer, would use text displays to show a selection of provocative statements compiled by the elders. Pedestrians could choose their own slogan to display among 30 or so options, or watch as slogans change automatically, reflecting local attitudes aggregated from nearby mains radio devices.

The images scanned by the elders would be displayed on large electronic *image boards* set along the roads and rail lines that ring the Bijlmer. The selection would depend on the values displayed by groups of slogan furniture linked to a particular image board. Commuters and travellers would thus be afforded new views into the area, beyond the sights of the foreboding housing blocks themselves.

This network of electronic displays would project an increasingly coherent expression of the Bijlmer, encouraging inhabitants to reflect on their own values, those of the diverse cultural groups sharing the district, and those of the surrounding culture. A nervous system for the Bijlmer, it would help to provoke awareness of the existing community both to inhabitants and to the surrounding culture.

Design Research

The Projected Realities proposal may sound unusual to the CHI community. In this paper, we hope to explain how we developed the design, and the rationale behind it.
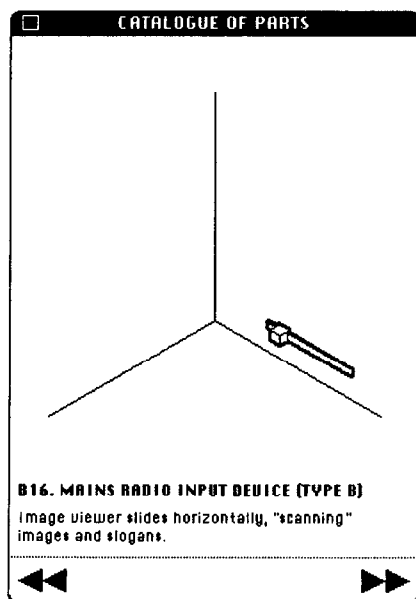
The proposal is an example of our approach to research on technologies from the traditions of artist-designers [see 7, 12]. Our intention—and our brief—in this project was not to tackle the Bijlmer's apparent problems directly, nor to produce a public art work that merely comments on the situation. Instead, our primary concern has been to find new ways that technology can enter and affect everyday culture. Thus the Projected Realities proposal resembles a media space in its emphasis on peripheral awareness and commu-

nication, but uses unusual devices, images and statements to encourage new forms of engagement for the local elders. This emphasis on offering new opportunities through design rather than solving problems underlies much of what we do and how we do it.
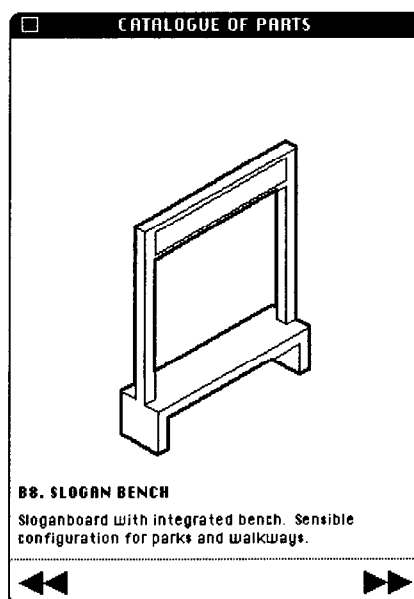
This paper is organised around three aspects of our work that we would particularly like to illustrate. First, in our version of user studies, we were interested in opening a dialog about possibilities with the elders, rather than diagnosing their problems, and so used techniques from the conceptual arts to provoke their reactions, instead of more scientific methods to study their needs.

Second, the ways we developed and communicated ideas also reflected an arts-design tradition. In this tradition, the designer's subjective stance is an important part of the design process. Our methods were intended to acknowledeg this and encourage both our own creativity and that of the elders. In generating ideas for the Bijlmer, we used brainstorming over time and visual problem-solving to develop design ideas synthesising our views of the area. In presenting them to the groups, we used impressionistic images and narratives to sketch out the cultural effects we intended to make. We hope to show that, while unconventional for most HCI practitioners, techniques like these are appropriate and effective methods for generating innovative designs—thus our decision to devote 1/3 of this paper to a stream of images parallelling the text.

Finally, the resulting designs themselves are positioned in an intellectual context of design and art, rather than science or engineering. This project, for example, takes insights from media space research [e.g., 4], but uses conceptual art strategies [e.g., 9] to situate them in an urban environment. In discussing our work, we would like to illustrate how the arts can serve as basic research for this kind of design.

CATALOGUE OF PARTS

B16. MAINS RADIO INPUT DEVICE (TYPE B)

Image viewer slides horizontally, "scanning" images and slogans.

◄◄   ►►

Mains radio device

CATALOGUE OF PARTS

B8. SLOGAN BENCH

Sloganboard with integrated bench. Sensible configuration for parks and walkways.

◄◄   ►►

Slogan furniture

CATALOGUE OF PARTS

B4. 270 NETWORK BILLBOARD WITH CABIN

Useful meeting space for gauging reactions or planning new campaigns. (With viewing port)
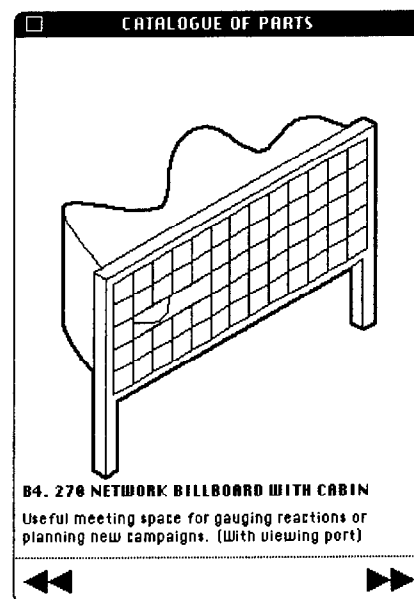
◄◄   ►►

Image board

UNDERSTANDING THE USERS: CULTURAL PROBES

To start the project, we gave cultural probes to the 10 members of the elder group: packets of maps, postcards, photo albums and other items to which they could respond and post back to us.

We designed the probes in response to a number of converging concerns. The brief of the Presence Project, to increase the presence of elders in their local communities, allows us wide latitude in our choice of interpretation, technologies, and approaches. With the ability to pursue an experimental approach to our designs, we didn't need *information* about the elders, so much as *inspiration-clues* about their attitudes, their aesthetics, and their desires.

The strategy we took in designing the probes borrows from a tradition of cultural provocation in the arts stemming from Dada or the Surrealists [10], in which tactics of ambiguity, absurdity, or opacity are used to strip away habitual interpretations and open new possibilities. For instance, the probes are reminiscent of the Fluxus yearboxes [9], in which whimsical and humourous objects, often readymades, were presented in package form.

The Cultural Probes were particularly influenced by the Situationists [1,11]. A radical group centred in Paris from the late '50's to the 70's, they used a variety of strategies to counter the all-encompassing, media-fuelled "Spectacle" created by commercial culture. For instance, the maps included in the probes echo their psychogeographic maps, which showed the varying emotional neighbourhoods of urban areas in ways that official maps do not represent. More generally, we tried to emulate their tactics of pleasure and intrigue as a means of discovery, taking them to more traditional concerns of user centred design.
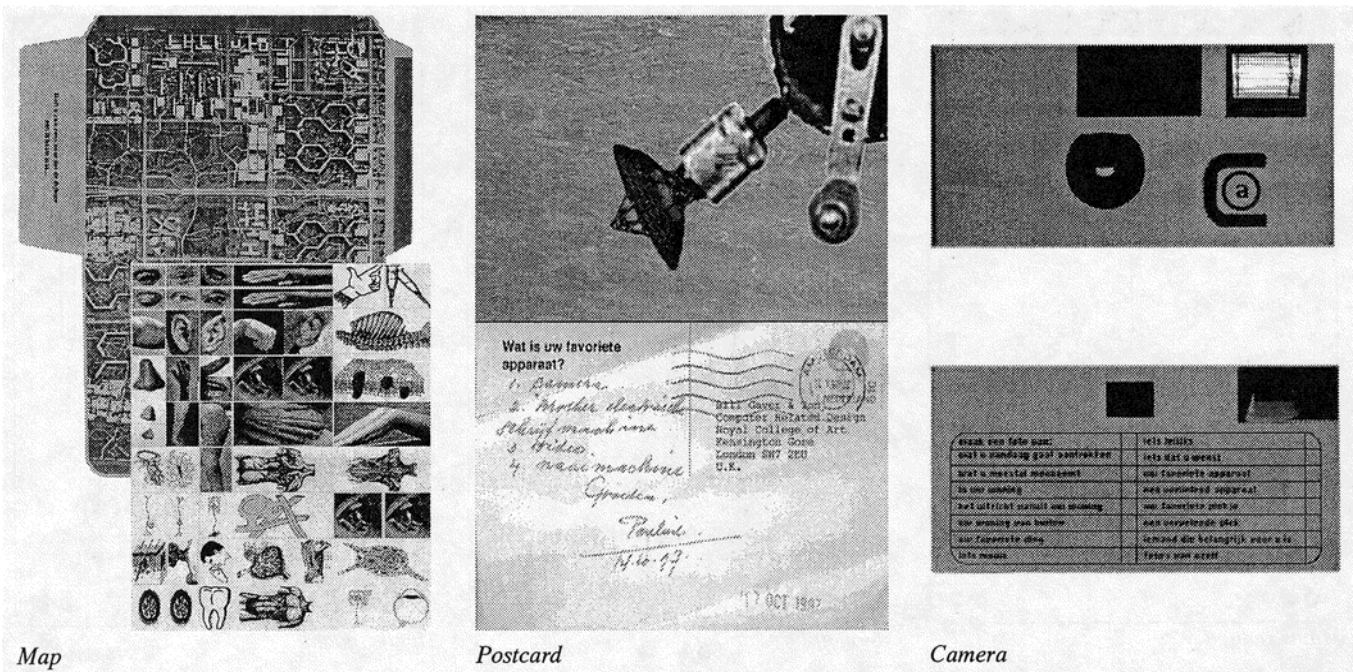
The Probe Materials

The probe materials addressed people's emotional, aesthetic, and experiential reactions to their environments, but in open-ended, provocative, and oblique ways. For instance, one of the half dozen maps we included-each in the form of an unfolded envelope to be mailed back to us--asked "if the Bijlmer were a body..." and included precut stickers showing images of limbs, ears, eyes, and internal organs to identify corresponding parts of the area. Postcards asked questions such as "tell us a piece of advice," or "why do we have politicians?" A disposable camera, repackaged to remove it from its commercial origins, included a list of requests for photographs such as "what you will wear today," "something beautiful," or "something ugly," while leaving 10-15 shots to be chosen freely. Finally, a small photo album was included, with the request to send us "6 - 10 pictures that tell us your story."

Giving and Receiving

The probes succeeded not only in eliciting materials that inspired our designs, but also in provoking the elders to respond to our experimental approach. When presented to the group, they sparked intense discussions with the elders about our intentions, their lives, and the community. In the weeks following our return we received large amounts of material in the post-about half the items in all, though some only included notes about why they weren't completed, which we had encouraged in case of difficulty. The hundreds of pictures, maps and postcards offered a surprising and intimate view of the area which was crucial for our designs.

Several features of the probes seemed to play a role in their success. First, we tried to avoid stereotypes of elders as needy or feeble, instead focusing both on their rich experiences, and their opportunities for life free from the need to work. Adopting this attitude meant, in part, that we felt

Map   *Postcard*   *Camera*

able to challenge or provoke them with the probes. Second, the probe materials were preaddressed and stamped to be returned to us separately. This emphasised their flexibility and our lives in another country, undermining the typical unapproachability of scientific experts. Finally, the probe materials were crafted to be pleasurable and intriguing, yet not professionally finished, They reflected the energy we had put into them, and revealed our tastes and interests to the group. At the same time, they used a slightly clinical aesthetics to encourage detachment and curiosity.

The materials were not designed for a summary analysis. Instead, most of what we learned from the Cultural Probes was articulated through our designs, rather than in explicit reports. We thought of the proposals as our turn in a conversation that had started with the probes and continued with the elders' responses. Presenting the proposals to the group implied our perceptions of themselves and their community, as well as suggesting possibilities for change.

METHODS: EXPLORATIONS AND SKETCHES

As returns from the Cultural Probes gathered, we started to generate ideas about designs for the Bijlmer. This was done in two phases. In the first phase, we generated a loose collection of proposals and presented them to the group and our colleagues for discussion. In the second phase, we used their reactions to focus and integrate the concepts into the current proposal. In this section, we discuss our method for developing and presenting the two rounds of proposals. In the next section, we describe the proposals themselves and their conceptual underpinnings.

Brainstorming in Slow Motion

In developing our proposal for the Bijlmer, we started by exploring a wide space of ideas, knowing that we would narrow them progressively later in the project. This initial exploration was analogous to the traditional brainstorming

sessions familiar to designers, in which people toss out as many ideas as possible, with none being criticised and all recorded. Exploring seemingly impractical ideas is useful in this process, often allowing the discovery of new spaces for design.

In practice, learning from improbable ideas takes time, but traditional brainstorming sessions tend to be relatively brief. Although ideas are not supposed to be evaluated in brainstorms, groups often reject ideas that seem too conservative or too frivolous. With little time to explore ideas deeply, it is difficult to go beyond obvious or familiar possibilities. We found that intermittent, ongoing conversations about ideas worked better for our group than focused brainstorming sessions, allowing our ideas to be filtered naturally over time.
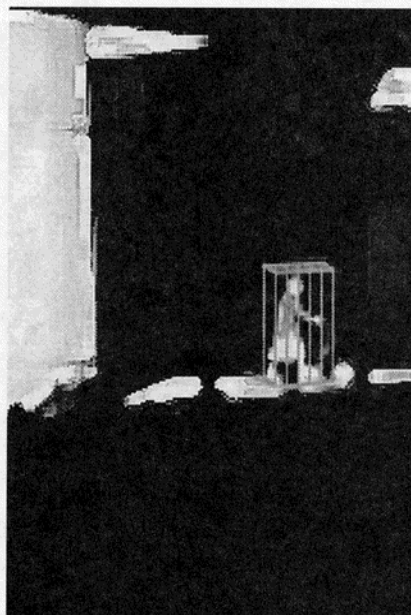
For example, security was an overriding issue as we started to generate ideas, in part due to returns from the probes stressing the "junkies and thieves" in the area. Sparked off by a chance photograph of the area, we started thinking about cages for the elders, in which they could sit or walk safely outside.

The idea of cages for elders is clearly an insulting idea, one we would never propose seriously. From a conceptual perspective, however, developing the notion was a useful (if crude) way to highlight the problems of designing purely to combat fear. The images and stories we explored reminded us throughout our later designs that if we overemphasised security, the systems we produced might themselves become electronic cages.
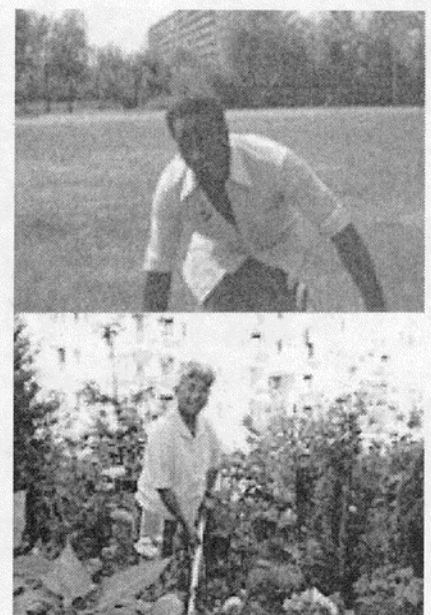
Having adopted an extreme view of the area as a dangerous no-man's land made contradictory evidence of the everyday social life in the area more noticeable. We started to attend to images that revealed this more homely side of the
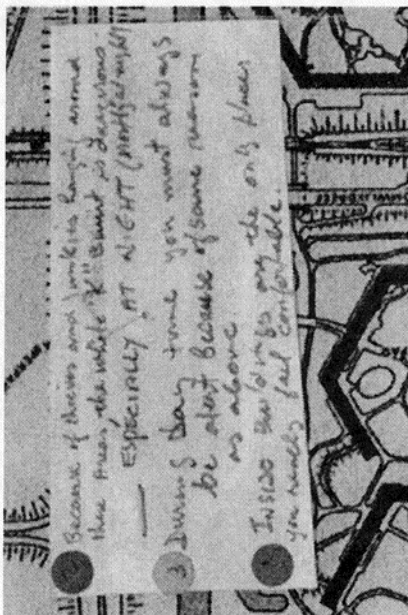
"Thieves and junkies hanging around..."   *Cages for the elderly*   *Everyday Bijlmer life*

Bijlmer: people gardening or picnicking in the parkland surrounding the housing blocks, or enjoying parties within. Eventually, these two perspectives became integrated in our view of the Bijlmer as enjoying a rich cultural life in a harsh environment, and made us aware that its undesirable reputation is neither wholly deserved, nor an accurate reflection of the inhabitants' feelings.

Brainstorming over time allowed these ideas to grow or be discarded naturally, without undue need for explicit justification or criticism. Instead of analysing fundamental needs to guide design, we clarified our understanding of the Bijlmer through designs that synthesised our responses to the many sources of evidence we had.

Impressionistic Scenarios

In our designs, we focused on the kinds of social or cultural interventions that might be meaningful, rather than specific instantiations. Insofar as we discussed particular artifacts, they were *placeholders,* embodying the kinds of possibilities we wanted from our designs, but not necessarily the particular technologies or forms. Sketches of devices or system were a way of thinking through issues and possibilities for us, were always understood to be provisional.

Communicating ideas at this level was a challenge when we presented them to the elders for feedback: if the ideas were presented too abstractly, people could not imagine living with the systems; if they were presented too concretely, the elders would focus on the details rather than the overall intentions. In both phases, then, we sought to present our ideas in a way that would encourage people to consider the cultural effects the systems might make, rather than the specific devices implementing them.

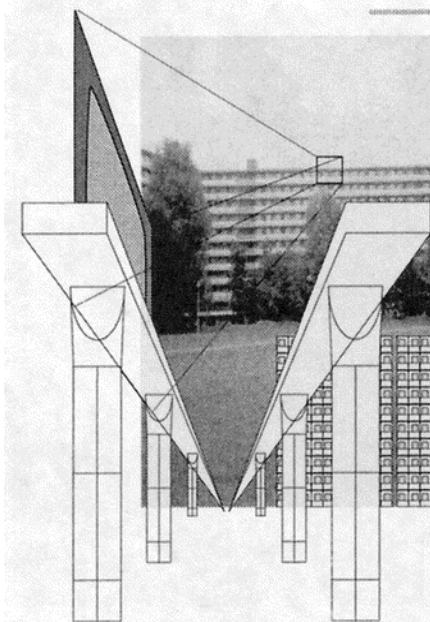For the first phase of design we approached this by compiling an impressionistic book of images and text to sketch our ideas. To convey the openness of the proposals, we mixed a wide range of graphical styles in the presentation, from diagrams overlaid on photographs, to collages, to relabeled mail-order catalogs. Text was used as a kind of background to the collection, separating categories and explaining the intentions of our ideas. Using this plethora of styles, we tried to create a kind of filmic feeling to the presentation, allowing people to explore the space of possibilities as if glimpsing fictional worlds in which they already existed.

For the second phase, we produced a series of interactive simulations to be used onscreen in order to capture the experience of using the systems and seeing them change over time. The core of the presentation was an overview of the system, and simple, more specific pieces showing each element. In addition to the specific proposals, we also included a "catalog of parts," which allowed people to scroll through and see different elements that might appear in the system. This worked well in allowing us to become more specific about the kinds of artifacts we had in mind, while still exploring a space of possibilities.

Both the storybook and interactive simulations encouraged the elders-and us-to imagine the world implied by our designs, rather than deciding whether or not the specific examples made sense. We wanted them to enter this world for a while, to tell us what their everyday lives might be like, and about the successes and failures they might anticipate. For them to envision it this way helped us develop the ideas in realistic directions, a more precise and useful process than merely accepting or rejecting ideas wholesale.

RESULTS: DESIGN FOR CULTURAL EFFECTS

The proposals developed through this process responded to our perceptions of the elders' lives in the Bijlmer, and the possibilities we saw for increasing communication and awareness in the area. They capture the results of the

Early image board sketch

Vent rovers

Psychogeographic pager

TG-V100

Psychogeographers Mood Entry Unit
- Built-in aerial
- Simple pos/neg buttons
- Trigger for 6 individual mood settings
- GSR adapter available for automatic entry

Vent Rovers wander the maze of air ducts in the Bijlmer, seeking muffled sounds of everyday life and transmitting them later for others to hear.

Probes, and our brainstorming over time. In addition, they reflect the influence of the arts as well as more traditional issues from HCI and CSCW.

Three Clusters

Our initial design stage resulted in three clusters of ideas for possible interventions in the Bijlmer. One that appears relatively unchanged in the current proposal is for image boards to be placed along the highways and railtracks ringing the area, showing images scanned by the elderly or perhaps snapshots being developed in photographic shops. This proposal reflects our perception that the Bijlmer's notoriety is misleading: people are proud of living in this culturally varied community, and would like to challenge its poor reputation.

Another set of ideas explored new ways that people might inhabit the huge housing blocks. This started with the suggestion that security cameras in different parts of the buildings might be linked, with the output of one showing on a monitor near its partner. Like the cages, this responded to a focus on security. But the possibilities of new social patterns offered by this kind of corridor media space moved beyond a neighbourhood watch scheme to one amplifying the area's real community.

The idea of linking security cameras also responded to people's alienation from the physical fabric of the buildings themselves. Several of our proposals suggested ways to colonise this infrastructure. Inspired by National Geographic articles about telematic devices used to explore volcanoes, reefs, and gopher burrows, we thought of robots that would travel the ventilation system, recording and broadcasting domestic sounds to allow glimpses of other lives. Ultimately, this led us to mains radio technology, which we thought might form the basis of internal intercoms or radio stations.

A final set of ideas updated the Situationists' psychogeographical maps, already reflected by the cultural probes. The elders could carry psychogeographic pagers, allowing them to signal where they felt afraid, safe, bored, or intrigued. The combined output might appear as maps or public displays, control public lighting, or be read by hand-held meters. These ideas again respond to security worries in the Bijlmer, but also to its hidden attractions: markets, underground churches, solitary flower beds and ponds.

The group reacted positively to the ideas, apparently recognising themselves in our suggestions. Image boards were received enthusiastically as a way to counter the area's bad reputation. Linked security cameras intrigued them, as did the ventrovers, and they agreed with our impression that the friendly mingling of different cultures is a strength of the area. Finally, they clearly understood the idea that psychogeographical pagers could help capture everyday knowledge about good and bad areas within the Bijlmer.

As we discussed living with the systems, however, they raised many issues we hadn't imagined. For instance, they were afraid that the ventrovers would let thieves know when they weren't home, and thought linked security cameras might compromise privacy. More fundamentally, they weren't sure the psychogeographical pagers would be useful because the emotional topology of the area is already a familiar background to their everyday activities. Instead, they suggested the idea was more useful to reassure their friends about visiting them in the Bijlmer and to guide them once they arrived.

Focusing and Integrating

Informed by the reactions of the elder group in the Bijlmer, we refined and focused our ideas into the more definite proposal for the area outlined at the beginning of this paper. Many of the placeholders were discarded, as some ideas no

Images from the workbook   *Mains radio study*   *"muggers creating zones of fear..."*
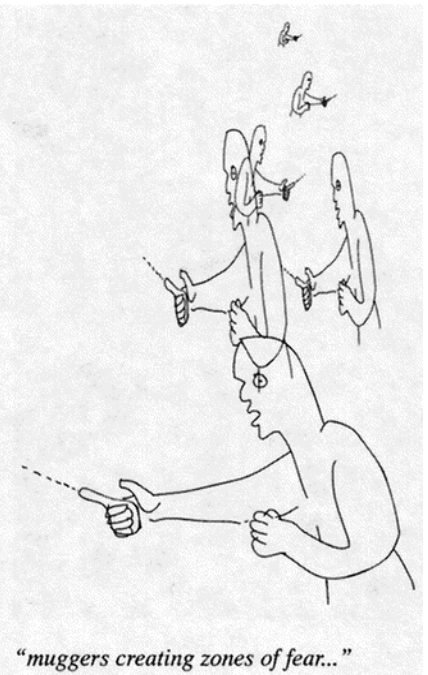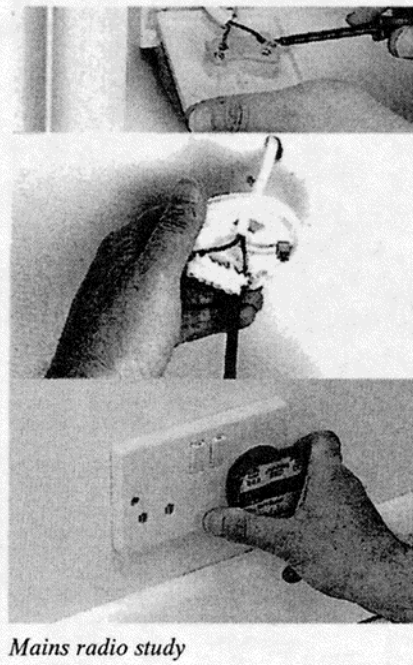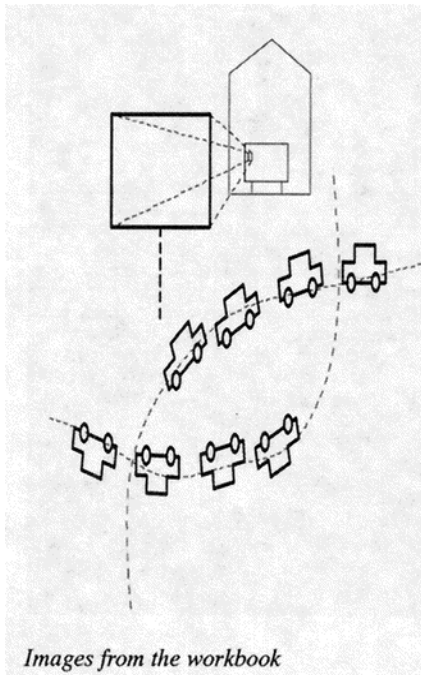
longer seemed meaningful or practical given the reactions of the group. We didn't abandon the concepts behind the proposals, however, but instead found new ways to express them within an overall system.

In this process, for instance, the psychogeographical pagers were transformed into the current slogan furniture concept. Rather than try to reveal the good and bad areas of the Bijlmer, it became possible to make explicit people's existing understandings as a vehicle to promote greater cultural understanding. Slogan furniture became interesting as a way of expressing attitudes about the local environment, and encouraging reflection and communication about different perceptions of the Bijlmer.

Similarly, though literally inhabiting the infrastructure using robots proved undesirable, the idea of using the infrastructure as a link between individual inhabitants and the surrounding community seemed strong. Realising that both the image boards and slogan furniture were allowing expression in public areas, we changed the direction of the mains radio devices to allow individual inhabitants to have access to the community's culture within their own homes.

An important innovation of the current proposal was in combining the elements into an integrated system. If each were separate, their display would reflect only the individuals or groups who last controlled them. Linked together, however, and their display allows a more organic expression of the culture to emerge. People might display an image at home, and then see local slogan furniture indicating that their neighbours feel the same way. They might see a particular slogan reflecting local attitudes, and change it to send the neighbourhood a different message. Or they might dislike what the local imageboard is showing, and scan new images that better reflect their perceptions. Taken separately, the devices act as means for expression-at

home, in the neighbourhood, or to the outside. Together, they take on aspects of a communications medium as well.
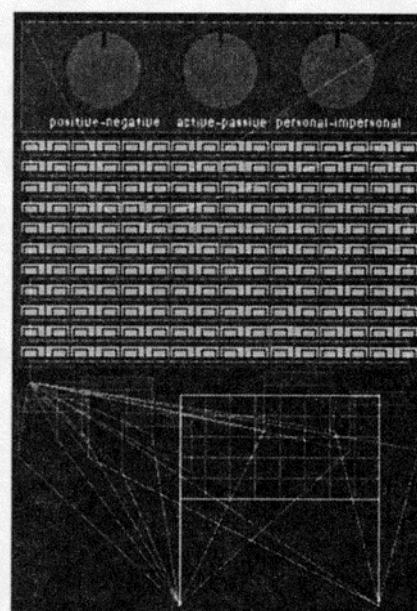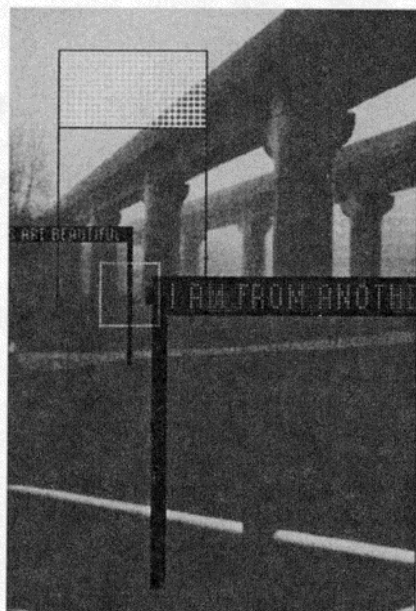
APPLYING CONTEMPORARY ART

In this paper, we have tried to illustrate our approach to working as artist-designers doing research. The effects of working within this conceptual and cultural context can be seen throughout the project, from our strategy for getting to know the users, to our methods of developing and communicating ideas, to the aims and techniques of the proposed system itself.

The Projected Realities proposal needs to be developed further before elements of the system can be put in place in the Bijlmer. We believe the role of design research at this stage is to suggest technologies that are plausible, concentrating on the effects they should achieve rather than details of their implementation. From this point of view, the proposal itself is a finished piece of work, opening new perspectives on the design of technologies for elders in urban communities. It may function like architectural proposals which, even if never built, are influential in the field [e.g., 9].

The Projected Realities system responds to the theme of presence in complex ways. In the home, mains radio devices might allow elders to become more aware of their neighbours, their lives and values. The slogan furniture allow attitudes and values to be more publicly shared or even confronted within the community, while imageboards expand this to the surrounding society. These devices give new ways for the elders to make their presence felt, and to feel the presence of others-but in fact, they amplify, and thus draw attention to, ways that are already present.

Our proposals involve issues familiar to HCI, particularly from work on media spaces [4] demonstrating how technologies used on the periphery of attention can allow new

forms of sociality to emerge [6, 8].

The approach we took to these technologies, however, were more directly influenced by the work of a number of contemporary artists [see 9]. For instance, Jenny Holtzer has displayed "truisms" in public spaces (e.g.: "children are the hope of the future," "children are the most cruel of all"). In provoking people to agree or disagree, these works-clearly referred to by the slogan furniture-ultimately raise questions about the status of such statements.   Gillian Wearing photographed people holding signs on which they had written down what they were thinking; we hope the image boards and slogan furniture might elicit insights into people's attitudes as striking as those she attained. Krzysztof Wodiczko [5] has projected images onto buildings and designed portable shelters for the homeless; our designs are similarly aimed at making local issues apparent. Finally, Atelier Van Lieshout [3] design urban shelters which take a poetic approach to issues of urban survivalism; we are also interested in public furniture hinting at new forms of social inhabitation.

In applying to design the tactics of artists such as these, we are extending the notion of awareness [see 4] from a concern with peoples' presence and activities to one including the attitudes and emotions of diverse cultural groups. This kind of *provocative awareness* relies on strangeness and amplification to draw attention to issues of concern in the community. In this way, the Projected Realities system is intended not only to support ongoing relationships, but to act as a sociocultural intervention at personal, community, or political levels.

The Projected Reality proposal is for a system intended to exist over time in the Bijlmer, growing in value and meaning with use. While drawing on the arts, it is neither intended to be judged in a gallery context, nor as a personal statement about our perceptions of the Bijlmer. Instead, like any good collaborative technology, it is intended to form a new channel of expression and communication that people in the Bijlmer can appropriate for themselves. In suggesting that the Projected Reality system might raise awareness, communication and presence, we are also hopeful that it might be used for subversion, local obsessions, or play.

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