Designing in the Street: Innovation In-Situ

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Designing in the Street:
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Abstract
This paper suggests that taking the design process into the field and constantly engaging with the site to observe, intervene, brainstorm, prototype and create fosters unique forms of inspiration and innovation. How does a consideration of participation of both the designer and the user in the space change the design process? With participation comes understanding of the situation and by elaborating on possible futures with users, designers can find lucid innovations. We describe a project conducted by students from the Interaction Design course at the Royal College of Art in London which used a variety of approaches to speculate on the social and technological future of a London street. We discuss and compare the role of different techniques which enable designers to find inspiration for innovative technology in the field, or in this case the street.

Keywords
Design, Prototyping, Ethno-Fiction

Streets have many functions for many different people: streets are in-between spaces between work and home for commuters, a space to meet friends for teenagers, a place to work for some people and a place for shopping for most of us. Despite its intense and diverse use, the street remains largely unexploited by technologies, yet could be ripe for developing smart spaces. We are referring to smart spaces here as ordinary environments equipped with sensing technologies.

This project took "the street" as the site of research; specifically one small section of a London street. The project looked at how design can be used to speculate on the future, both through the use of hypothetical proposals and scenarios, and by working closely with the people who could be most affected by those proposals. Inspired by the anthropologist, Jean Rouch, we attempted a type of ethno-fiction where the designers and the people imagined together, but indirectly.

It was a collaboration between design students and faculty and industry based researchers. We wanted to explore the possibilities of a smart street, but we were just as interested in the process for understanding and creating those possibilities. The process was completely experimental for all involved and in this paper we describe the details of those experiments, plus reflections on the process as an experiment. One of the things that became clear during the project was how much designers learn by improvising and designing in

context, because what you get from those experiences is less about some huge insight during an interview, but more the very act of participation that changes the view of the designer. Simply having to explain your idea makes you understand it more.

Background to the project

The project spanned three weeks and was conducted by MA students in Interaction Design at the Royal College of Art and was sponsored by Intel Research. The student project acted as the kick-off for a year-long project about smart streets for People and Practices Research, part of Intel Research.

We focused on a short section of Gloucester Road, in the London Borough of South Kensington, to envisage it as the smart street of the future. We approached the street from the perspective of the participants in it: (1) those who are passing through (e.g., pedestrians); (2) those who are more permanently in place (store/shop owners or workers or residents); and (3) those who frequently interact there without dwelling there (transit drivers, postal workers, delivery people, garbage collectors, etc).

As a way of structuring the scenarios, the project took as its starting point two future changes to the lives of those living and working in Gloucester Road, London: the extension of the Congestion Charge, which is a daily payment made by all drivers who enter central London, and the discontinuation of the analogue TV signal. The students were asked to speculate on two consequences of these changes:

- Mayor Ken Livingston has decided that in addition to the electronically propelled vehicles being included on the list of Congestion Charge exemptions and discounts there is a new category: e-vehicles.
- A new local channel 'Watch My Street TV Media Group' has applied for a license and will be operating locally from a Gloucester Road/South Kensington location, using the street as a regular studio.

The students were asked to develop scenarios and concepts which would explore these consequences: What could an e-vehicle be? Who will the Smart Street be for? What could using the street as a studio mean? What will be the interplay between those who live, work and hang out on Gloucester Road?

The students began by developing the consequences of the Smart Street scenario, and identifying groups of people who might be implicitly woven into the plot. They conducted observations and interviews to examine what people were doing, how they were doing it, what they used, and how they thought about the environment. The students then designed and implemented a series of experiments to engage people in a conversation to help build and develop the scenario. Using all the shared research gathered by the group, they were to propose a set of products and services for the new smart street. We encouraged the students to merge these three steps rather than keep them neatly apart as this description might suggest. Rather, we were interested in doing several iterations of research that would gradually move from observing and interviewing to intervening with experiments that progressively stimulated people from Gloucester Road to speculate with the designers about the future.

Using ethno-fiction and design

Our suggestion to mix-up the usual separation between research and speculative scenario development was partly inspired by the French ethnographer and filmmaker Jean Rouch, in particular by his ideas about "ethno-fiction." From the 1940s, Rouch used film to do his research, moving away from the use of film in anthropology as a mere note-taking tool. He developed a mix of cinema and anthropology that converts the conventional division in anthropology between description and imagination (Grimshaw, 2001). In particular, he plays with the dichotomy of truth and fiction in his films. For Rouch the truth of fiction is revealed in what he calls "ethno-fiction," a mixture of ethnography and filmmaking, and of documentary and fiction: "For me as an ethnographer and filmmaker, there is almost no boundary between documentary film and films of fiction. The cinema, the art of the double, is already a transition from the real world to the imaginary world, and ethnography, the science of the thought systems of others, is a permanent crossing point from one conceptual universe to another; acrobatic gymnastics where loosing one's footing is the least of the risks" (Feld, 2003).

To prevent loosing his footing, Rouch does not devise a strict method beforehand; rather he improvises while he is in the field. Together with his collaborators and participants he takes risks with understanding of everyday life and innovation of anthropology as their goal. He refers to this process as a game, with some rules but also the possibility to change the rules at any time, to bend them and find the cracks between the rules (Grimshaw, 2001). Such a process is not unfamiliar to designers, who are used to setting limitations (or rules, as a way to focus) to their explorations and changing these at will when new ideas no longer result from setting these limitations. To begin the project we showed the students examples of Rouch's films and encouraged them to take their ideas out into the street, and to improvise as they went along. The original brief was also presented as a fictional future to which they had to repond.

Rouch's acknowledgement of fiction as a tool in ethnography to describe and imagine everyday life, connected well to our wish to develop speculative scenarios. For the scenarios we had to create stories that had the same inextricable mix of everyday life and imagination that ethno-fiction has. Rouch suggested to us that imagining could already be part of our ethnographic research on the street itself, and that we could do this with the people we would find there, as long as we were prepared to take risks.

Other related approaches

There have been a wide variety of methods used by designers in order to engage with potential users and speculate on future products:

For Informance (Burns et al, 1994; Dishman, 2003; MacDaniel, 2003) actors/designers used simple props to act out a scenario to explore design ideas and to convey those ideas to others in their research group and to provoke further brainstorming.. Sato and Salvador (1999) describe a variation on Informance Design called Focus Troupes where the performance is primarily being used to communicate the idea for a product to potential users in a focus group.

Bodystorming (Buchenau and Suri, 2000) is similar to Informance design in that it uses a recreation of an environment as a site for physical brainstorming and design explorations. They describe this as an example of experience prototyping, where the experience is being used by the designer to explore and evaluate design ideas, not to communicate to an audience.

Oulasvirta (2004) and Oulasvirta et al (2003) describe the use of bodystorming in context, where they stress the need for 'being there', where there is the actual place, or a very similar place to the originally observed context, in order for designers to generate meaningful ideas. Placestorming (Anderson and McGonigal, 2004) adds everyday household and office objects as props, rather than the simple blocks and shapes many other researchers and designers use, but their aim was to concentrate on both the physical context and the physical properties of the artifacts they were using.

Iacucci et al (2000, 2002) describe two role-playing exercises for concept creation: a large-scale board game where players move pieces around to act out scenarios and SPES (Situated and Participative Enactment of Scenarios) where a simple prop becomes a "magic thing" and is carried around and imagined in use. SPES in particular involves the user taking the prop out into their everyday context.

Svanaes and Seland (2004) use role-playing and props in a slightly different way that is more like a combination of bodystorming and focus troupes. They used a full-scale mockup of a hospital ward and had users act out scenarios from their everyday lives, adding devices as needed. They described this as designing-in-action. This is similar to the approach of "endowed props" (Howard et al 2002).

Cultural Probes (Gaver et al, 1999) were an attempt to provide "inspirational data"; "to stimulate our imaginations rather than define a set of problems". Probes have since become a more widely applied term in the research community (see Boehner et al 2007 for an overview). The original team criticize much of this work as being too analytical and by being too linked to results, missing the point of probes themselves (Gaver et al 2004). Paulos and Jenkins (2005) describe a derivation called "Urban Probes" which they describe as "simple functional artifacts and accoutrements that are introduced into the urban landscape".

Design approach

The first 24 hours of the project were spent doing serial observations, with the students taking shifts, except for a short gap between two and five a.m. on a cold and wet Tuesday night. The initial conversations and observations were very important for creating an understanding of the flows and patterns of life on the street. Sketches, maps, notes and photographs were collected and combined to generate pictures of the street. Some of the pictures were literal, like the photographs, but others were more suggestive, like a slowly evolving visualization of "peopleplacestransport" (Figure 1) which indicated who and what came and went on the street. On this diagram the passing of the bus became a series of red lines, showing the regular pulse or beat of the buses passing up and down the street, and highlighting its potential use as the basis of a concept.

Through observation and informal conversation in shops and cafes the students started to identify activities, shops and people, (both individuals and groups) who would become central to their design work over the next three weeks. Part of the initial brief was the idea that the people of Gloucester Road would be co-creators of the scenarios of the future, but the question was how to facilitate this in an extremely short project. We were keen to include people, but include them in what? How could we explain to them what we were doing while we were still grappling with what that was? The first step was to understand more about what was going on in the street, and to start "speculating" through the use of props and scenarios, so that they could draw people into conversation and collaboration. We wanted to involve them in creating solutions for our fictional future.

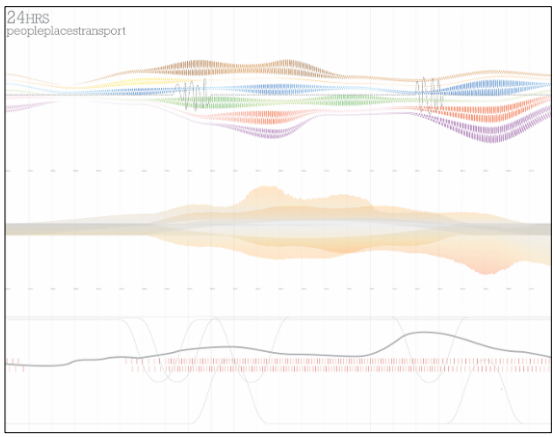

Figure 1: "Peopleplacestransport" diagram.

We held a brainstorming day which identified three themes which could form the basis of scenarios:

- Trading covered ideas to do with potential changes in the shops and businesses along Gloucester Road if the Congestion Charge changed the amount of passing trade and trading might be both more local and more virtual.
- Flow meant using the flow of passing people, cars and buses to increase the flow of information both along the street and between different "nodes" in the city
- Identity was exploring ideas around the street having an identity as a village and improving communication in the village

Both as a way of developing the themes, and to learn more about "intervening" in the street the students put together a short interview guide containing abstract and open-ended questions such as "Are you local?" and "Where in the street would you like to be buried?". These were modelled after the Probes work (Gaver et al, 1999) and the aim was to engage in conversation and help others create this picture of their street. The answers that were generated were not in themselves very revealing, but did provide inspiration and information in different ways. The first was an experience of what it would be like to actually take something out on the street. An interesting by-product of the initial interviewing was that it quickly revealed people's comfort-level with approaching and talking to strangers. Some of

the students had never had the experience of working directly with their "users" and were very shy. The braver and more sociable members of the team were the primary interviewers, but some of the others realized the usefulness of simple props as a way of initiating conversations, even when these were as simple as a clipboard.

Getting out in the street also made the students visible and known to the community; the traders saw them and recognized them. They developed relationships which continued, so that two of the students, Tom and Henry, would eventually start each of their later experiments with a trip to the one of the charity shops where they had developed a friendship with one of the staff. There they could hone their story and work out what they were trying to say.

The students then split into teams to create scenarios and simple props which they could use to explore themes with the Gloucester Road community.

Penny for your thoughts

The first experiment was "Penny for your Thoughts" which involved handing out almost one hundred leaflets to passers-by asking them to email their thoughts to the students. All the leaflets were distributed, but not one answer was received. The only success of this idea was that the leaflets were not immediately discarded as the penny made them slightly more precious.

Bus Stop Messaging

Bus Stop Messaging involved hanging a large pad of paper with an attached crayon on each the two bus stops in the street and then leaving them for a whole night. The pads had a question and an instruction on the front: "What are you thinking about to pass the time? Write and Draw"

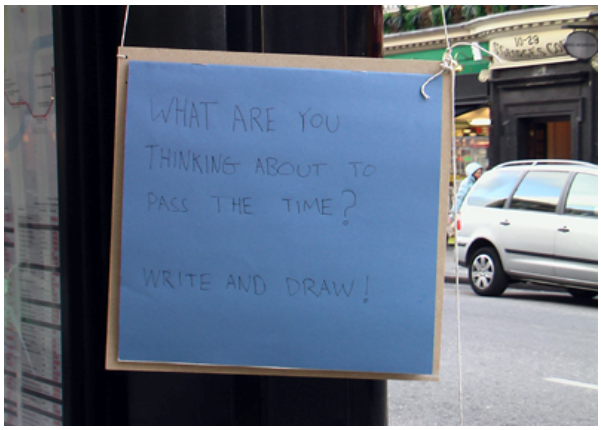

Figure 2: "Bus stop messaging" pad hanging on the bus stop.

This was more successful than the leaflets as it was a shared and public artifact; anyone who contributed could see what else had been written and knew that others could see their comment in turn. One of the pads was completely filled and the students were pleasantly surprised that none of the comments were obscene. The other pad was less successful as it had been stolen. Unfortunately there was no surveillance of the messaging pads so we had no idea who had participated or who had removed the pad, but there had been encouraging numbers of participants; more than 20 people contributed (there were 20 full pages).

Swap box

The swap box was made from an MDF pillar with a translucent plastic crate placed on top. Inside were a variety of found objects which had luggage labels attached to them with handwritten explanations of their stories.

Figure 3: "Swap Box" interior showing objects.

The Swap Box was intended as a way of exploring the theme of "trading" with a community feel, along the lines of Freecycle (n.d.), a website where people can offer things they no longer want and ask for things they need, without exchanging money. There are a few charity shops in the area and a manager of one of the shops had said that "the people who buy things in this shop, they aren't the ones who leave things, they aren't from round here". What would the local residents want to swap with one another? Would items that had a story attached have more value? Would people want to swap services, or experiences? On the street the students asked passers-by which item they would choose from the swap box, and what they would replace it with. They were also asked what they would like to find in the swap box.

One woman chose to swap the bag containing "DNA from Michiko's mother" with her "Indian culture": because it would contain "personal experiences". However she would have liked to find "Nature" in the box. A male police trainee was keen to swap his "fading knowledge of French" for a computer chip supposedly containing "research findings and statistical results of underground prostitution networks in the Kensington and Chelsea area". He wanted to find math skills to help in his upcoming exams.

By endowing everyday objects with "experiences" the students were taking the simplest approach to prototyping as a way of focusing on the idea rather than the object. The Swap Box was successful in gauging interest in sharing stories and experiences, and participants offered abstract and poetic ideas. The "fading knowledge of French" for instance introduces the idea that skills have a limited shelf life.

Design your street

The same team set out again to ask people to imagine the Gloucester Road of the future. The "Design Your Street" box contained lots of small objects with which they could populate their street and was designed to act as a catalyst

for discussing hopes and fears of the future. This looks a little like the "role playing game" described by Iacucci et al (2000) but had quite different aims. The students went into the shops to talk to people because they needed people who knew the street quite well to speculate on the future of the street and be able to give an interesting answer. Also, it took more time than the swap box (10-20 minutes) and people in the street don't have that much time.

Figure 4: "Design Your Street" box completed by interviewee.

The small game pieces included people, a bus, a bench and a tree, but also representations of technology like W-LAN and DNA. Four boxes were constructed, and some common themes emerged. The boxes were used as mini stages where people created streets largely full of technology and foreboding. Nature was either absent entirely, or trees were being used to fight pollution. The future was seen as "a lonely place", and most of the shop keepers didn't see their business surviving in a more homogenous future.

Design Your Street enabled much closer communication between the people of Gloucester Road and the students as they developed scenarios for the future. It also revealed the different quality of interaction that was enabled by the warm and friendly environment of the shops in the quiet middle of the afternoon. However the choice of objects and their representation had an impact on the way that people were able to portray the future. Susanna, one of the students, explained "at first the objects were not great as there were too many of them from the present, like benches and buses. Later we used only technology; abstract things like 'send', 'receive', and small Post-its on which people could write what they wanted (everyone used them - the Sandwich shop owner for instance wrote 'lonely place' to express that in his dark scenario people would only communicate through technology and he would deliver his sandwiches via a subterranean system)."

Gloucester Road Messaging System

The Gloucester Road Messaging System (GRMS) built on the willingness to write publicly shown in Bus Stop Messaging and the interest in sharing stories that had been seen in the Swap Box experiment. The students became the messaging infrastructure as they carried large (12" square) Post-it notes around the street. The students were trying to imagine new ways for the people in the shops to communicate with one another, and the literal carrying of messages was a simple way to suggest such a system.

GRMS was developed on the street as the students tried variations on the theme of picture messaging. They started by offering to draw images if the participants were not comfortable drawing, and later offered a variety of

templates for people to add to. They started by asking the friendly assistant in the one of the charity shops to write a note, and say where it should be delivered. He drew a picture of people being buried under bags of donations to be sent to the charity shop across the road. They, in turn, wanted to amend the message and send it back – but also to keep a copy for themselves which meant more drawing for Henry, and highlighted the limits of a physical prototype of a digital system.

Figure 5: "GRMS" Post-it note message.

Having to explain the system, and answer queries about its functionality prompted the students to add the equivalent of metadata to the notes; what were the instructions attached to the note? The students were playacting, so they were also able to introduce their own points of dramatic narrative into the exchange by pretending that someone had been sent a note.

Tom, one of the students explained that "Henry (a student) and I were doing our research according to no particular rules we setup beforehand. We were changing it as we went along. Not really making up as we went along: just every drawing brought us back to square one and then we went through the whole thing of what to draw, with whom, for whom, etc, again. It was a very iterative process and we changed something every time we went through a new iteration.

It was like a game with rules. There were rules because you can't get people to do everything, and there were limits to what can be achieved in a short period of time by us, with our skills. Drawing came out as a good option because it was quick, we can draw, and everybody understands it. Post-Its turned out to be good because they said to people: 'messages', 'not precious', 'quick' everybody understands them. We were making notes on the street is what the Post-Its said, and people started making notes on the street with us. We understood all this more afterwards than at the time - it was more a intuitive decision to use Post-Its after the notepad on the bus stop did not give us what we were looking for."

Concepts

Concept scenarios were brainstormed at the end of the project. As the concepts are presented here, they are still very rough. As Tom comments: "Reflection on what we had done with the research had not been completed so lots of detail from the research is missing in the concepts." Nevertheless, some themes that came out of the research are visible in the three scenarios presented here.

Gossip vehicle

Figure 6: Illustration of Gossip Vehicle concept.

The Gossip Vehicle combines the ideas of Gloucester Road as a village, the desire to encourage communication between residents/shopkeepers, and the introduction of e-vehicles… A Gossip Vehicle is a car sharing scheme which is powered by gossip. To gain access to the car some snippet of news or gossip must be whispered into the car, and then during the journey the "collective intelligence" of the community is played to the driver. This was partly based on "交換日記 回覧板 ko kan nikkia kai ran ban" a circulating community diary in Japan used by one of the student's grandmother.

Barter bus

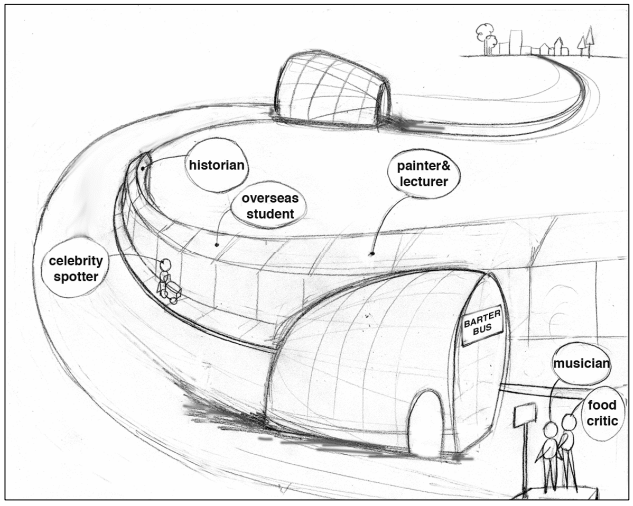

Figure 7: Illustration of Barter Bus concept.

A Barter Bus is a community broadcasting vehicle which links the different areas on its route. Currently buses pass up and down the street at regular and almost constant intervals. The students felt that their presence and size could be used as a broadcasting infrastructure. Passengers or those on the bus route could upload their content to the bus: local history, photographs, local news, stories and images. The buses could broadcast regular "bus casts", both as a way of keeping people informed about their own neighbourhood, and as a way of sharing information between different areas or nodes on the route.

Street furniture pets

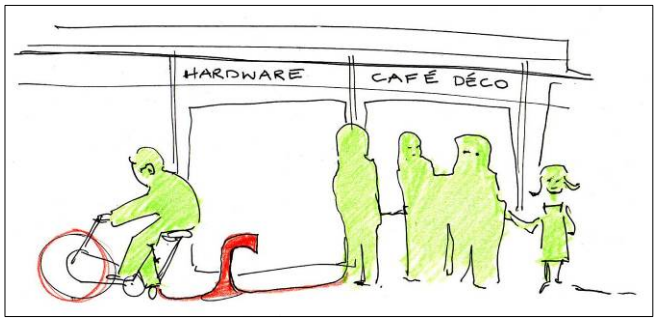

Figure 8: Illustration of Street Furniture Pets concept.

Street Furniture Pets are jointly owned infrastructure such as street lamps, benches and other street furniture. Each resident of the street would share responsibility for maintaining a "Pet". The main area of responsibility is power as a way of raising awareness of energy usage and promoting energy saving. Therefore if the street lamp outside your flat or shop is sharing a limited amount of power with you, your decisions about how much energy to consume inside your flat will have a direct repercussion on the amount of light available to those on the street outside your flat. If you waste energy then you will have to generate power yourself to keep the communal infrastructure working.

Reflection

In their design research experiments the students used a wide variety of methods which drew inspiration from, or comparisons to, previous research using probes, bodystorming, role-playing and scenarios. However what they really did was not exactly any of those. The experiments they created were a way of getting to know the people and the space they were designing for. They had no specific user group and a very broad definition of place; just a street and its people in the future. They used the experiments as a way of uncovering themes which seemed important to the people they met, and then wove those themes into further experiments and concepts. Much like Rouch they saw their approach as a kind of improvisation or a game with rules to be adapted as needed. Tom (a student) explained: "We learned that, when you are asking people to speculate with you, there is a fine balance between giving away too little information and too much. Too little and too much both result in very little feedback. This worked very much like a design process where you set rules for yourself or a game where you try to break the rules."

In some ways the experiments in the street were an extremely rapid introduction to the community and a way of breaking down barriers. Susanna (a student): "In general I learned you need to develop a relationship with people over time to get interesting stories from them and to be able to speculate with them. We developed the relationship by simply being there a lot, first learning who has time to talk to you, when they have time, by just observing and starting small conversations to introduce yourself and what you are doing. These people that are all day in the street observe you too, so they know after a while that you're there. You slowly become part of the social network of the street; people start to introduce you to others. Like an employee at the sandwich shop (who had come out to do the Swap Box with us) introduced me to his boss and suggested he did the Design Your Street with us, which he did." By their willingness to take risks and look ridiculous, the students became both an object of curiosity and stepped away from the role of "interviewer". They were not afraid to loose their footing and they continuously worked on building relationships with people in the street. As a result people were willing to play with them.

By the time the students designed the Design Your Own Street and the Gloucester Road Messaging System, they already knew several people well enough to design their experiments with these people in mind. They were a response to what the students had been creating before, the Swap Box and the Bus Stop Messaging, and they took into account what they had learned about the kind of interaction you can expect on Gloucester Road, with a particular group of people, at a certain time of the day. All this site-specific knowledge was fed into the experiments' design, and greatly improved the speculations that the students aimed to provoke.

The goal of experiments like the Swap Box was not to elicit direct reaction to the object itself, but to be a way of thinking about an idea for the students themselves. They had ideas about sharing and trading objects within the street and the Swap Box became a way of working through some of those ideas, both in the design of the box and its contents inside the studio, but

more importantly as they edited and explained the objects during their interviews on the street. As they whittled down the objects and honed their story on the cold street they could see what was interesting about the idea of giving things away.

The Gloucester Road Messaging System was much the same. The students were not trying to design an actual picture messaging system for the street, and the Post-its were not an early paper prototype for the shopkeepers to critique and iterate upon. The messages were a way of asking about what could be, and discovering how much people knew or wanted to know about those who worked nearby.

The experiments slowly shifted their focus from learning from the people in Gloucester Road to speculating with those people. This shift was supported by introducing fictional elements in the experiments. The Swap Box was already fictional, with objects like "the DNA of Michiko's mother," and the chip that supposedly contained "research findings and statistical results of underground prostitution networks in the Kensington and Chelsea area." These were more successful to elicit stories than useful objects like food. Design Your Own Street let people build their own stage for the speculations on the future of their own street. The Gloucester Road Messaging System went a step further by enacting the speculations that the designers and participants came up with. Throughout the development of the experiments, fictional elements became more and more important in supporting speculations of people in Gloucester Road. The students added fiction to their ethnographically inspired experiments because they found out that that helped their participants to speculate with them.

Elements of the speculations and the experiments that the students did were used in the concepts that were made right at the end. We feel however that the full richness of the research and the experiments is not reflected in the concepts. Susana: "The gossip aspect is good, that really came out of the research, but the car that we connected to it in the concept we just took from the brief and did not discuss with people in the street. The brainstorm we had about the concepts was still quite good, but we lost a lot of detail when we had to actually storyboard the concepts/scenarios." As Susana suggests, the concepts could have been richer in detail and better connected to the street if they had been discussed, or tried out, with people in Gloucester Road. This however is future work that needs further exploration, as the project was only three weeks long and the aims were extremely ambitious. Svanaes and Seland (2004) talk about using simple prototypes as a way to "put the users center stage, and learn by observing them acting out and designing their present and future life worlds". The students were observing their users and were surprised by the willingness of strangers to participate and the creativity of their responses. However the experiments and scenarios they created were not really about creating realistic scenarios, but more about processes and methods for how to engage people, and finding ways to ask questions.

Conclusion

Iacucci and Kuutti (2002) quote Carroll as saying that "scenarios evoke reflection in the context of doing design". We feel that this project highlights ways in which reflection for designers can be evoked by moving the context

of design into the context of practice, that is, as much as possible, by doing the design in the field. The students of the RCA who were working and imagining in the street were keenly aware of the possibilities of the street. They came up with design ideas that were inspired by the realities of their observation and conversations.

The students developed simple ideas into objects that could catalyze conversations, and then refined those objects as they saw what worked or did not. They realized that having a prop or an artifact gave them a focus for conversation and a place from which to launch an idea. Students used their design skills such as drawing and model making in their research, by creating objects to take to the street, but they were also prepared and able to improvise while in the street itself. They were tasked with creating ideas for an imagined future and to ask the people of the area to help them imagine that future. The focus on adding fiction to an ethnographic approach facilitated a speculative, playful and innovative approach, which could deliberately move away from solving current and practical problems.

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References

Anderson, K. and McGonigal, J. (2004). *Place storming: performing new technologies in context.* In Proc. NordiCHI 2004. ACM Press.

Boehner, K., Vertesi, J., Sengers, P. and Dourish, P. (2007). *How HCI interprets the probes.* In Proc. CHI 2007, (pp. 1077-1086). ACM Press.

Buchenau, M. Fulton Suri, J. (2000). *Experience Prototyping.* In Proc. DIS 2000, (pp. 424-433). ACM Press.

Burns, C., Dishman, E., Verplank, B., and Lassiter B. (1994). *Actors, hair-dos and videotape: Informance design.* In Proc. CHI 1994, (pp. 119-120). ACM Press.

Büscher, M., Agger Eriksen, M., Friis Kristensen, J., Mogensen, P., *Ways of grounding imagination.* In Proc. PDC 2004. ACM press.

Dishman, E. (2003). Designing for the new old: asking, observing and performing future elders. In B. Laurel, *Design Research: Methods and perspectives (* pp41-48). Cambridge, MA and London: The MIT Press:

Feld, S., Ed. (2003). *Ciné-Ethnography: Jean Rouch*. Visible Evidence. Minneapolis and London: University of Minnesota Press.

Freecycle. http://www.freecycle.org/

Gaver, W., Dunne, A., and Pacenti, E. (1999). Cultural probes. *Interactions*, 6(1), 21-29.

Gaver, B., Boucher, A., Pennington, S. & Walker, B. (2004). Cultural Probes and the Value of Uncertainty. *Interactions*, XI(5), (2004), 53-56.

Go, K. and Carrol, J. M. (2004). The Blind Men and the Elephant: Views of Scenario-Based System Design. *Interactions*, Nov and Dec, 45-53.

Grimshaw, A. (2001). *The Ethnographer's Eye: Ways of Seeing in Anthropology*. Cambridge, New York: Cambridge University Press.

Howard, S., Carroll, J., Murphy, J., and Peck, J. (2002). *Using 'Endowed Props' In Scenario-Based Design.* In Proc. NordiCHI 2002 (pp. 1-10). ACM Press.

Iacucci, G., Kuutti, K., & Ranta, M. (2000). *On the move with a Magic Thing: Role Playing in Concept Design of Mobile Services and Devices*. Proc. DIS 2000. ACM Press.

Iacucci, G. and Kuutti, K (2002). Everyday Life as a Stage in Creating and Performing Scenarios for Wireless Devices. *Personal and Ubiquitous Computing*. 2002, 6:299-306.

Laurel, B. (2003). Design improvisation: Ethnography meets theatre. In B. Laurel, *Design Research: Methods and perspectives, (*pp49-54). Cambridge, MA and London: The MIT Press

MacDaniel Johnson, B. (2003). The paradox of design research: the role of informance. In B. Laurel, *Design Research: Methods and perspectives* (pp. 39-40). Cambridge, MA and London, England: MIT Press.

Mazé, R., and Bueno, M. (2002) *Mixers: A Participatory Approach to Design Prototyping.* In Proc. DIS 2002, (pp. 341-344). ACM Press.

Oulasvirta, A., Kurvinen, E., and Kankainen, T. (2003). Understanding contexts by being there: case studies in bodystorming. *Personal and Ubiquitous Computing* 2003, 7, 125-134.

Oulasvirta, A. (2004). *Finding new uses for context-aware technologies: The humanistic research strategy.* In Proc. CHI 2004, (pp.247-254). ACM Press.

Paulos, E. and Jenkins, T. (2005). *Urban probes: encountering our emerging urban atmospheres*. In Proc. CHI 2005. ACM Press.

Plowman, T. (2003). Ethnography and critical design practice. In B. Laurel, *Design Research: Methods and perspectives* (pp.30-38). Cambridge, MA and London: The MIT Press.

Rogers, Y. and V. Bellotti (1997). Grounding blue-sky research: How can ethnography help? *Interactions,* 4(3), 58-63.

Sato, S. and T. Salvador (1999). Playacting and focus troupes: theatre techniques for creating quick, intense, immersive, and engaging focus group sessions. *Interactions,* 6(5), 35-41.

Stoller, P. (1992). *The Cinematic Griot: The Ethnography of Jean Rouch.* Chicago and London: University of Chicago Press.

Svanæs, D. and Seland, G. (2004). *Putting the Users Center Stage: Role Playing and Low-fi Prototyping Enable End Users to Design Mobile Systems.* In Proc. CHI 2004, (pp. 479-486). ACM Press.

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