

# Reworking the Gaps between Design and Ethnography

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## ABSTRACT

Since Dourish's critique of 'implications for design' [15], researchers have asked how design and ethnography should or could relate in HCI. Here we reflect on two experiences with cross-informing ongoing ethnographic investigation with the early stages of research through design. One uses speculative design to reflect on and inform ethnographic fieldwork on busyness in middle-class families; the other uses speculative design to complement late-stage analysis of a historical ethnography of rural technological infrastructure. Rather than trying to do away with the gap between ethnography and design by seamlessly integrating the two processes, we reworked the relationship between ethnography and design by closing the gap in the temporal workflows while simultaneously maintaining a distinction in the performance of the two roles. We found that this new gap resulted in a series of misunderstandings; but by putting the two roles in active dialogue, we were able leverage misunderstandings into mutual benefit.

## Author Keywords

speculative design; ethnography; inventive methods

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

## INTRODUCTION

A decade ago, two papers defending qualitative methodologies appeared in the same, standing-room-only session at CHI. Wolfe et al [59] addressed perceptions that creative design, unlike behavioral social science, was a subjective, methodless 'black art' whose use in research might corrupt the results. By throwing light on how design practices work, they aimed to defend design against attempts to 'improve' it for HCI by making it standardized

and scientific. Dourish [15] argued against what he saw as a standard HCI trope of leveraging ethnography and assessing its worth through the generation of lists of simplified 'implications for design.' He called for a broader understanding of the relevance of ethnography to understanding how humans and computers interact, and invited designers to draw inspiration from a full expression of ethnographic understanding in anthropological works.

Since then, a foment of discourse has appeared about how design and ethnographic practices should be understood and put into relation in HCI. Authors define one in contradistinction to the other [e.g. 13, 15, 59] suggest how the methods could be reconfigured to flow more seamlessly into each other [12], and frame the two methods as potentially incommensurate [e.g. 3, 12] or, alternatively, interchangeable [21]. Much of this literature arises in response to one question: if not through 'implications for design,' then how should collaborative exchanges between design and ethnography be configured, and what framings of 'design' and 'ethnography' are enrolled in these configurations? Within this discourse, one way to read the Wolfe et al. and Dourish papers - although this does not do them full justice - is as defenses of the legitimacy and core values of their methodologies against the strange hybrids, misconstructions, and deformations that arise from trying to work the practices into an imagined ideal HCI workflow.

Here, we build on an understanding that both design and ethnography are rich, complex, creative, and diverse knowledge practices. Our goal is to find new ways to knit them together without watering them down. How can design and ethnography enhance each other as knowledge practices, not by making an ethnographer do design, or making a designer do ethnography, but by putting them in intimate conversation? What would happen if we built on the idea of reciprocity between ethnography and design [22] to imagine how they can co-produce each other?

We are by no means the first to have this idea. Anthropology is exploring 'inventive methods' [43] and other approaches that bring sensibilities, values, and techniques from design practice into a new engagement with ethnography [29, 33, 38, 49, 44,51]. A rich literature explores how research through design can examine, understand, and intervene in social worlds in ways that

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resonate with, connect to, and draw from ethnography [e.g. 4,56,13]. Here, we explore the potential of connecting these two sensibilities by using speculative designs to embody, reflect on, and push forward emerging ethnographic understanding. We test what happens when we approach the field in this manner in two situations: in early fieldwork about busyness and IT usage in middle-class families, and in mid-stage analysis of a historical ethnography of technological infrastructure in a rural village. Using these experiences, we show that gaps between design and ethnography do not need to be eliminated, but can be reworked to effectively bridge between them.

#### **MOTIVATION: DESIGN MEETS ETHNOGRAPHY IN HCI**

In this paper, we take ethnography to be a complex set of practices aiming to understand human experiences and societies in naturalistic settings. Ethnography is not a 'method' but involves many different methods, including participant-observation, semi-structured interviewing, structured interviewing, structured observations, and documentary analysis. Within HCI, there is often a broad definition of design as about producing objects intended to be used by end users; in this paper, we build on design in the product and industrial design traditions, including all stages of design research and production.

In discourse around the nature of design and ethnography and their interrelationship in HCI, we see both design and ethnography as caught in a narrative that places them in a particular service relationship within an imagined HCI workflow, in which ethnographers are responsible for understanding what users are really like and designers are responsible for leveraging that knowledge to generate relevant technological innovations. In this framing, the gap between what ethnography produces as output and what design needs as input then becomes a problem. A natural response to this framing is to solve this problem by reconfiguring the relationship between the two methodologies to eliminate the gap.

But in attempts to resolve the gap, design and ethnography can be inadvertently pitted against each other, since designers may feel ethnography should be altered to better meet their needs [12], while ethnographers may resist reshaping their work towards an eventual design imperative [15]. In turn, other researchers propose practical ways to move across the gap, proliferating hybrids that cross the gap at the cost of violating values and commitments of proponents on one side, the other, or both; whether there is a difference between 'discount ethnography' and 'bad ethnography,' for example, is highly contested.

#### **Design and Ethnography as Hybrid Practices**

One way to frame ongoing debates about design and ethnography is as a tug of war between two perspectives: one which works them together by adapting and transforming their methods, another that keeps them apart to maintain their internal integrity. But even if we start from a goal of disciplinary purity - i.e. that ethnography in HCI

can and should be good ethnography, e.g. as practiced in anthropology, and that design in HCI can and should be good design, e.g. as practiced in design schools – hybridity is already present. While in HCI, ethnographers and designers may sometimes feel they need to defend the authority and legitimacy of their approaches, in disciplines where that authority is a given, there is more flexibility and freedom to experiment. There, we see discipline experts creatively drawing inspiration from and incorporating values, methods, and orientations from other fields.

In applied anthropology, for example, practitioners have long had to integrate their knowledge and research with other disciplines, and to some degree face similar challenges to those being discussed in HCI. More deeply, social science disciplines that leverage ethnography are already using design to rethink what those disciplines could be. In anthropology, for example, Marcus and Murphy engaged in experiments that use design materials and methods to rethink what anthropology could or should be. They argue that ethnography and design are, in fact, similar practices [12]. Notably, design and ethnography exist both as methods and as outcomes; they are both ways of understanding the world and concrete products of that understanding. Bringing the ideals and practices of design into anthropology is a way to explore design and its contemporary hold on the imagination, and also to confront the realities of contemporary society which demands engagement in different ways than the remote foreign natives who were once the primary object of study.

In other experiments with sharing ethnographic material with engineers, ethnographic materials have been useful for encouraging engineers to reframe their perceptions of design problems [6], while also providing industry ethnographers with a glimpse into how engineers would interpret ethnographic analyses. Other methodological experiments combining ethnography with design have included putting design students and anthropology students toward the same task [53] and integrating ethnography into participatory and co-design efforts [7]. These calls draw attention to the ways that design and designerly sensibilities can be already found in erupting into ethnographic method.

At the same time, design is already framing itself as not just about 'making things' but also as a knowledge practice engendering understandings of a complex sociotechnical world. This 'research through design' approach leverages a variety of methods including guerilla research [61], sketching [60,42], design workbooks [24] open-ended conceptual design [27], and material speculation [58] to develop broader understandings of design spaces and through design to explore and influence new dimensions of human social and cultural practices (e.g. [19, 32]). Drawing on insights arising in design theory [20], within critically oriented and design research communities in HCI, there is a trend towards using design as a form of inquiry into the

world, rather than focusing primarily on the creation of innovative technologies [1, 4, 10, 23 59,63].

### REKNITTING DESIGN AND ETHNOGRAPHY IN HCI

One conclusion from these works is that ethnography and design are less distinct than may appear on the surface, complementary approaches to exploring and understanding human cultural life and the role technology does and could play in it. Rather than aiming for disciplinary purity, these intersecting disciplines can be framed as repositories of skills and knowledge that can be integrated in new ways, driven flexibly by the demands of data collection, ideation, and analysis. Rather than connecting the ‘output’ of ethnography to the ‘input’ of design, these approaches could cross-inform one another from the earliest stages of research practice. We thus began our work from the assumption that the ideal of a seamless workflow from ethnography into design fails to do justice to the complexity of what both ethnographers and designers do in practice and how they could and do engage each other. We bracketed this expected workflow to see what happens when early stages of research are interwoven rather than chained.

Marcus and Murphy explored the possibilities of such an approach in their “ethnocharette” workshops [44], which experimented with using design thinking to reconstruct and reinterpret ethnography. Attendees engaged in brainstorming sessions, gave Pecha Kucha presentations, and designed speculative newspapers, cities, and “ironic computers.” The organizers speculated on the value of applying these methods not only to written ethnographies, but also to field notes, interview transcripts, proposals and draft manuscripts as “stimulus material” [44] to further explore how design methods can be applied toward analysis that is less set in stone. Such explorations suggest value in developing methods to systematically integrate early-stage ethnographic and design research. In the following case studies, we describe two experiences in which we systematically integrated early design research with ongoing ethnographic investigation to develop insights towards developing such methods. In this work, we made three key methodological hypotheses.

**First, we engaged ethnographic insights through design research as they were being formed and analyzed, prior to their encapsulation as results.** This choice was intended to widen the narrow bandwidth of communication between ethnography and design. We expected that design research would produce its own perspectives on these materials, even prior to complete analysis. In addition, by setting up a dialogue in formative stages, it could make it possible for insights from research through design to inform and shape ethnographic investigations in mutually beneficial ways. Our intention was therefore not only for ethnographic insight to inform design, but also for design research to enliven ethnographic possibilities.

**Second, we used speculative design as a language for embodying design insights about emerging ethnographic**

**data.** Speculative designs are proposals for designs that could potentially exist in some lifeworld, but are not necessarily ‘practical’ [18]. While speculative design can identify user needs and inspire design solutions, this is not its primary function for us. Rather, speculative design can be an effective way to communicate design insights to a broader audience [24]. In our approach, we used it as a way to communicate ideas about what is at stake in on-going fieldwork. We speculated that the design proposals could function both as inspiration for further design and as an alternative representation form for ethnographic writing.

**Third, we set up our approach as a dialogue between two researchers engaged in different roles: one as an ethnographer, the other as a designer.** These roles referred to the methods and stance of each practitioner, rather than their inherent identity as researchers. This choice was an experiment to see what would happen if the roles were held separate but in dialogue. This was inspired in part by practical considerations - in the real world, these skill sets are often held by different people. But this separation of roles was also a way to address chronic HCI concerns about disturbing hybrids that emerge when design and ethnography are forced into a single role.

### CASE STUDIES

Through two case studies, we explored what happens to design and ethnography when working from these hypotheses. The first case involved developing speculative designs to reflect on and inform ongoing ethnographic fieldwork on busyness in the lives of dual-income families. The second case involved using speculative designs to complement and move forward late-stage analysis of technological infrastructure in a rural community. Khovanskaya was the designer in both cases, but she worked with two different ethnographers. We give a sense of the different perspectives of designers and ethnographers by concentrating on the designer’s perspective in the first case, and on the ethnographer’s in the second.

Though the cases were different kinds of studies, used different ethnographic methods, and were at different stages of analysis, the general procedural aspects used to integrate design and ethnography were held the same: Roughly half of the meetings were informational, in which the ethnographer shared key incidents, artifacts, or insights as they are emerging from the field, and the designer asked informational questions. After these meetings, the designer studied the interview and fieldwork materials and created speculative designs to draw attention to potential interpretations and implications of this data. The other half of the meetings were design meetings modeled on design studio critiques. In these, the designer shared speculative designs in the form of storyboards with painted images, images with post-it note annotations, and handmade zines. In addition to these formal exchanges, the ethnographer also shared field materials (e.g. archival images, documents, fieldwork photos) and anecdotes in passing

with the designer. The outcomes of these design reviews became material for further rounds of speculative design.

To understand what was happening to design and ethnography when knitted together this way, we engaged in explicit reflection tasks to document trials, errors, and successes. This included recording conversations between ethnographers and designers and documenting all created design drafts. For analysis, we roughly transcribed the conversations and open-coded the results. This re-sensitized us to our own past experiences in carrying out the method. We looked for significant instances where our joint understandings of the research topics appeared to shift significantly. We reflected on those cases to identify recurring features or mechanisms that drove insight.

One caveat is in order. Normally, ethnography is only published in a finalized form, with careful reflection on how participants are presented and thorough vetting of analytic concepts. At the moments we describe in this paper, the fieldwork and analysis were still indeterminate. Thus, we often spoke in shorthand and reflected a provisional point of view whose truth was debatable. As we began drafting this paper, we felt in danger of violating our sense of professional responsibility to our participants and for our analysis. Still, revealing this process was essential for communicating how the method works. Here, we redacted incidents that we felt would potentially damage our participants or our relationship with them. In addition, we underscore that the only ethnographic truths in this paper are the truths of how designer and ethnographers related and how their understanding developed; comments reported here about fieldsites and topics of fieldwork were provisional guesses which may since have been dropped.

### CASE I: FIELDSITE SPECULATION

Our first case engaged ethnographic research examining how busy families engage with technology in everyday life. Mazmanian was in the midst of a large-scale project studying families with multiple children, in collaboration with two other ethnographers who were not involved in the design experiments. The ethnographic team spent upwards of 80 hours with each of 9 families during time outside of the parents' workplaces. They spent a significant amount of time in the home, and also accompanied family members into other social arenas – after school activities, sports, parties, church, dinners out, shopping, and leisure pursuits. Khovanskaya joined late in the initial fieldwork, just as Mazmanian was beginning to study the ninth, final family. Over their three-month collaboration, they engaged in four debrief-design rounds of approximately seven designs each. We will discuss four moments that together exemplify key dynamics we identified in our analysis of these interactions.

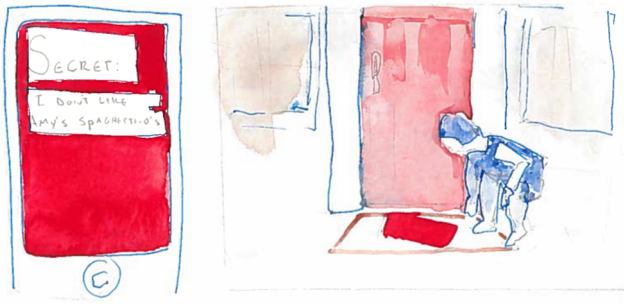
#### Designing what works

Following our first informational meeting, in which Mazmanian described her initial visit to the family we would be studying, Khovanskaya developed speculative designs that responded to different aspects the ethnographer

had communicated about the family, such as coordination and communication routines, spending time together, and concerns about children online. In one, Khovanskaya responded to what she imagined was a fairly obvious contradiction Mazmanian had reported: that the father only thinks that he's doing "work" if he opens his laptop, not when checking his mobile phone. Khovanskaya sought to question this distinction between "working" and "not-working" by making information about time spent working visible and thereby raising it as an object of contention. She sketched a timer measuring how long the laptop is open outside of regular business hours every week and displaying this count whenever the father opens a work email on his phone. The designer expected the ethnographer to agree that the father was inventing a fiction in which he was not 'working' on his phone when it seemed that checking emails on his phone also constituted a form of work.

But instead of agreeing with that this distinction was dubious, Mazmanian argued that we should not judge the distinction but work with the participants' "projected experience" of time. As she expressed it, the participants "don't call it working, so therefore I don't think I should be the one to assert 'you're actually working.'" She pointed out that time spent on the phone constituted a different sort of temporality: a monitoring or being on call, which constituted a different ambient awareness of work that then could turn into actual work if necessary. Then Mazmanian offered interpretations of what would happen, based on her experience in the field, if such a design existed. She hypothesized that such a design would be potentially interesting for people who wanted to be more conscious about when they are working without acknowledgement, but that for many families who are already struggling with feelings of guilt about their work-life balance, such a design would make them even more self-conscious.

For Khovanskaya, this was frustrating, because Mazmanian seemed to frame her reactions to the design in terms of what the family would hypothetically think if such a design were to exist in their literal reality, and how it would either not work, or make things potentially worse. This was the most consistent response to the majority of the designs in this initial design round; indeed, it makes sense given Mazmanian's ethnographic orientation to 'live like and live with' the participants in the study. But Khovanskaya had the sense that this worked against her own understanding of the role and place of speculative, as opposed to user-centered, design. These designs were never intended to be actually used in the fieldsite, but to communicate understandings from the ethnography in part by exaggerating them to project alternative, defamiliarized lifeworlds. This sensitized Khovanskaya to a non-correspondence between the ethnographer's stance toward working with the informants' projected realities, and the tricky, tacitly interventionist logic of speculative design.



**Figure 1: A design to anonymously communicate secrets (all images from Khovanskaya's design workbooks)**

### Designly Accountability

Subsequently, Khovanskaya sought ways out of concerns about negative consequences of counting and accounting for time, by designing a way for documentation to be more active. This design (Figure 1) was motivated by Mazmanian's narratives of the family's use of different communication technologies. The design builds from a specific empirical account: a time when the younger daughter deliberately asked her mom for something difficult over text from the next room, instead of in person, presumably to make it easier for both of them if the mother refused. The design also took inspiration from "Secret," a then-popular iPhone app used to send anonymous messages to other people. In this design, family members privately record "secrets" through the application. After time has passed and family members reviewed their submissions, the stories are assembled in a random order and delivered as printed text and images in a book.

Mazmanian expressed appreciation that this design moved away from the problematic logic she felt was embodied in the working time timer, which she expressed as "taking something that is taken for granted, and integral, and making it something that has to be visible and accounted for" because "it's like the whole point [of technological logic] is to take things into account." The 'Secrets' design became an ongoing touchpoint in their conversations as an example that Mazmanian felt did things 'right.' In response, Khovanskaya created more variations of this design. She developed designs that created opportunities for people to fashion their own accounts of what was automatically sensed, such as designs that take online activity as a prompt for journaling activities for the kids. Mazmanian continued to respond to these designs by voicing how different actors in the site would respond: how the kids would like some designs incorporated into their instagram accounts, but their mother or grandmother would hate it.

Mazmanian sometimes offered her own reservations or recommendations for theoretical frameworks to understand what was at stake in design strategies that make things visible in various ways and to various people. For example, when presented with a speculative design that mediates between the daughters' personal accounts and their

instagram use, Mazmanian recounted Turkle's conception of a "transitional object" [57 p 20] as a framework for understanding how the kids already relate through instagram. From these exchanges we can see how both the designer and the ethnographer had to come to terms with the fact that a proposed design is not just "for" the field in a literal sense but should also take into account the nuanced understanding of social life that a deep engagement with one family can provide. In addition, Mazmanian began to leverage the designs as a tool for imagining the multiple, overlapping perspectives of different actors in her field site. This analysis brought us closer toward the speculative thinking that takes place in an ethnography, where ethnographers continuously encounter and re-encounter the field and the role of theory in interpreting it.

### Working while not working

As the sessions progressed and Khovanskaya learned more about how this busy family coordinated their day-to-day lives, she became convinced that conventional scheduling applications were fundamentally unsuited to busy families' experience of time. In part, this arose from Mazmanian's separately published analysis of how these technologies, tend to treat time as discrete, 'chunkable,' single-purpose units managed by an individual, in contrast to family time which seems spontaneous and situated with many moving pieces [46]. It was also due to Khovanskaya's own horrified reaction to being confronted with the difficulties and complexities of this family's life, so acutely different from her own present as a childless graduate student and past in a family with different life conditions and domestic logistics.

Khovanskaya communicated this radical inadequacy in the logic of time embodied in scheduling technologies by identifying what she saw as a trend in that family of favoring scheduling through last-minute, in-the-moment exchanges rather than more centrally planned structures such as shared calendars and taking it to its logical extreme (a tactic drawn from critical design [19]). She drew out this point through parody with a "byzantine messaging application," a texting app where every time you schedule something you ask the recipient to confirm the time. When the recipient does so, the app asks the original sender to confirm that they received the confirmation. It quickly becomes evident that no matter how many rounds of confirmation are made, there is no way to guarantee that both parties agree the message was delivered successfully [41]. The app repeatedly pesters each participant to re-confirm their confirmations to make absurd a sort of coordination that happens on the ground all the time.

Though this design obviously does not work, it drew attention to how things in the field actually *do* work, in the sense that the family is able to leverage in-the-moment texting to coordinate while other, top-down forms of communication like calendars and schedules break down. And it is precisely the low engagement that supports the in-the-moment work. While Khovanskaya imagined this was

true for all busy families, Mazmanian pointed out that some families do make use of calendars because the order of their life is more suited to a top-down planning logic. At this point, Mazmanian began to flesh out a “little burgeoning theory” that might hold across the different families. “[The theory]’s come from them but also talking to them and talking to you and your reactions to them—like [when you react to my descriptions of the family’s life with] ‘what?!’.” Mazmanian contrasted the current family with two other families who used a more “top-down” calendar approach. She started to theorize how the other families were able to leverage top-down technologies because they had organized their activities, the ways they managed resources, and their movement through space and time in a way that matches the logic of scheduling applications.

What this interchange revealed is how even an absurd design can provoke the development of ethnographic understanding. The design worked by providing an account from the perspective of an informed outsider - someone who was not embedded in the ethnography but had more knowledge about its empirical details than a colleague or coworker would. The design functioned as an artifact around which conversations and reactions between designer and ethnographer began to shape a theory toward addressing what the design had explored.

### Designing the Modest Witness

In their final encounters, Mazmanian and Khovanskaya returned to the work timer to discuss how an ethnographer’s orientations to the field contrast with a designerly stance. The moment of misunderstanding called forth by this design drew attention to Mazmanian’s sense of a moral imperative to understand the lived experience of her informants. It also made visible in contrast Khovanskaya’s felt task to find problems and, as a speculative designer, to provoke interpretations of it based on her own suspicions, biases, and judgments. Speculation exists within both these tasks, but in different ways. Ethnographers speculate about the lifeworlds of their informants, while designers speculate through the lifeworlds their design projects. Creating a conversation across these speculations allowed Mazmanian to move between different analytic stages (theorizing, foreseeing design implications) while still staying morally “within” the field-site (living like, living with). The designs made an analytic space similar to that created when ethnographers trade stories during fieldwork to gauge possible interpretations of what they see. In this sense, Khovanskaya came to be a modest witness [34] of the early stages of ethnographic analysis, normally engaged in primarily through writing jottings, fieldnotes, and memos.

### CASE II: REDESIGNING THE PAST

The previous case explored how speculative designs could build from and inform ethnographic fieldwork. But dialogical engagement may look different when utilized at different stages and in conversation with different forms of developing ethnographic understanding. Our second case



Figure 2: A communal charging station for electrical devices.

study explores some of these differences in conversation with mid-stage analysis of a historical ethnography of Change Islands, a small fishing village in Newfoundland, Canada. This ethnographic case analyzed long-term impacts of introducing ‘modern’ technological and governance infrastructures such as electricity, telephones, mechanized fishing and fishing regulations. It drew on fieldwork in the community, archival documents, and oral histories.

A key emerging theme was that while infrastructures were introduced to improve village life, they often clashed with the community’s values and ways of working, in the long run undercutting the ability of the town to survive. One question that arose, then, was whether different design moves might have better reflected the community’s ways of being. We developed a design brief to “go back in time” to the 1950’s and imagine alternative design trajectories that might have led to a better long-term impact. We intended to develop evidence for or against a historical argument that things could have been done differently and to provide design inspiration to contemporary communities facing similar issues. We intentionally used the same work process as in the prior case. There, we focused mostly on the designer’s point of view. In this case, we focus on the ethnographer’s point of view.

### Representations that reveal realities

One of the issues Sengers described at the first meeting was a tension between new infrastructures being oriented to individuals and the village’s communal orientation. She explained how water infrastructure had shifted from jointly used government wells to plumbing for individual houses in ways that seemed to undercut communality. Recently, the government had installed a new communal well; she had been struck with the enthusiasm with which this ‘old’ solution had been received in the community. She also suggested that it could be helpful to design infrastructures that are not centrally controlled by outside organizations such as the provincial government or utilities.

In response, Khovanskaya developed a way to deliver electricity communally from a local institution, the village store. Residents could come to charge their devices on a

one-off basis without having to incur the ongoing costs of an electrical connection to their house. The image showed small electronics being charged. Sengers recognized the inspiration, saying "this was kind of like the wells right? Like the wells but for electricity." But, Sengers argued that the design would not work as pictured, because the appliances people used most commonly in those days - washing machines, hot water kettles, televisions - used much more electricity than could conveniently be charged in this way. People would have to bring enormous, heavy batteries, making the scheme less impractical.

This simple example revealed an unintended mismatch between the historical lifeworld Sengers was working within and Khovanskaya's present lifeworld that had small electronics as a key referent. Representing the reality 'wrong' revealed a deeper understanding of the constraints at the fieldsite to Khovanskaya and an awareness of the potential importance of this constraint to Sengers. On further reflection, we realized that we should differentiate two possible design briefs: designing for the actually known historical past vs. designing for an alternative present that could have come to pass if that history had unfolded differently, in which communal charging of small electronics could indeed reflect community values.

### Designs that reveal values

One dynamic we explored was the movement of residents to and from the island. In the 1950's and 60's there had been resettlement programs which provided funding for people to move away in search of better economic futures; these programs are today in disrepute because of a sense that they coerced people to leave. More recently, there has been some influx into the island of "Come From Aways" (CFA's) - relatively well-to-do, usually white-collar urban professionals who choose to live on the island part-time or full-time among the more blue-collar local residents.

Khovanskaya began exploring whether there were ways to leverage their relative prosperity to build a more sustainable economic future locally. At the next meeting, Khovanskaya introduced the idea of a "come from away tax, not... prohibitively but like, a little bit depending on the assets they have to begin with." Sengers rejected this idea:

*Sengers: I get the logic of that... It does run [against] central values [of the community], which is a kind of radical egalitarianism.... [E]ven though everybody knows CFA's and locals aren't the same, and that you'll never be a local no matter how long you've lived there, ... at the same time there is this real flattening of [social] distinctions. And to charge a special tax for CFAs would really be problematic socially as kind of social marker. Maybe there could be a way around that like...*

*Khovanskaya: Like maybe a one time thing?*

*Sengers: Or maybe like an income tax, something that's more indirect and doesn't say, 'Hey, you're a CFA [and so get treated differently]' but correlates with CFA status.*

Sengers went on to propose other options inspired by this tax. For example, in contrast to resettlement, in the 1950's they could have paid professionals to move to Change Islands to establish a more viable long-term future. Or

*[M]aybe there could be a way to get rebates on the tax by doing other things like starting businesses. Interesting to think about how the whole resettlement program was about paying people to leave these places. It's really interesting [to think about] what would have happened if you pay people to go to these places, what would be the context for that to be possible?*

The CFA tax idea revealed a clash in values between what Khovanskaya imagined might be appropriate and what Sengers knew would be appropriate. At first, it just seemed like a bad idea. But the design triggered clarifications of what was at stake in the case; moreover, it provided a concrete object to think with to reflect on those values and to imagine alternatives that could do them better justice. It provided starting points, not only for generating more designs, but also for putting the designs that historically existed in the case in a new light.

### Unexpected visual consequences

One of the first things Khovanskaya began working on was the visual feeling of the design sketches. This surprised Sengers; it was logical that a designer would pay attention to visual imagery, but it was unclear to her what the conceptual pay-off would be for time spent "simply" sketching the island landscape and architecture in different ways. At the second meeting, Khovanskaya reported, "it took me a long time [to] just visually [render] stuff like this, I'd... look at the photos and figure out how to render them not cutesey." She reported that she didn't want to show Change Islands as a romantically traditional landscape. This explanation suddenly made sense to Sengers:

*Part of the attraction of Change Islands for me is that it resonates with these kinds of mythologies of these 'traditional,' 'natural' places that are 'stuck in time.' The photos that I took [during fieldwork] reinforced that. [At first] I only took pictures of traditional houses and then I had to discipline myself to take a picture of the suburban[-style] houses too and all the things that aren't the traditional stuff..., to instead figure out how do you visually represent a place in such a way that it doesn't immediately fall into those stereotypes, which are really inviting.*

Not just design concepts, but their visual representations influenced how ideas developed. Once Khovanskaya sketched a craft cooperative whose products could be collected by helicopter in the iced-in winter months (Figure 3). Sengers was excited by the black-and-white image juxtaposing a 'modern' helicopter with a traditional saltbox house: "This to me as soon as I saw it I was like, 'Woah!,'... that's a different way of saying what Change Islands is. Not just the concept but how you're sketching."



**Figure 3: Visual imagery combining old and new**

Sometimes visual images misled, in ways that turned out to be productive. Khovanskaya arrived at one meeting with a sketch of a factory (Figure 4) and began to explain she was exploring alternative forms of employment. Sengers responded, "That's the factory? You know what I thought it was? I thought it was [a nearby high-end] hotel." Khovanskaya apparently thought this misinterpretation was caused by a mistake in her visual representation:

*Khovanskaya: I'm going to have to make it sort of miserable, add some smoke stacks.*

*Sengers: I don't know why it has to be more miserable.*

*Khovanskaya: I don't think they'd like to work there much.*

*Sengers: I don't know if that's true.*

*Khovanskaya: I thought that we had been discussing that they were not adapted for this kind of labor. [Here, she was referring to discussions about how work on the island does not fit into a wage-labor, clock-time model.]*

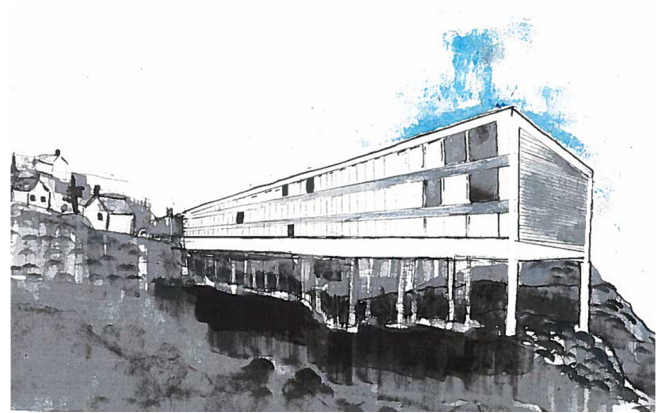
*Sengers: Well.. uh... it depends on conditions. Well, a lot of people work in the fish plant and they like that.*

The differing interpretations of the shared visual imagery called forth a significant difference in understanding the nature of desirable labor on the island. A take-home lesson for Sengers was the need to develop more nuance in her critique of wage labor as a mode of local employment.

### Redesigning the design brief

A recurring pattern of trouble appeared across the course of this project., where Sengers would report on an issue that design could address, Khovanskaya would create a design to address it, and Sengers would respond with, "They already tried that." This was, for example, her reaction to a cooperative to market local handicrafts and an artist-in-residence program for the iced-in winter months. Soon, this began to frustrate Khovanskaya and embarrass Sengers. "Why didn't you tell me that before?" seemed a reasonable question, and the true answer, "I didn't think of it" seemed to fall short of the moral requirements of the situation. One day, Khovanskaya came to a meeting with a new design idea she called provisionally "The Museum of Crazy Failed Ideas." She had been reflecting on the historical design ideas we had accidentally uncovered:

*and I was like 'Wow... the majority of [the historically tried] designs are speculative to some degree'—there are*



**Figure 4: A miserable factory, or a fancy hotel?**

*probably a lot of them, especially the 'unsuccessful ones'... aren't very easy to find, so it could be... a nontrivial but important task to collect and document versions of this work that already happened in the past. ... Other people [besides us as designers] had crazy ideas about ways to transform the island... I think that documenting it in terms of actually thinking about what the people on the island might want to know about their own history, or the tourists coming in might want to know in their effort to understand the island, I think that this could be... interesting.*

Sengers did not know what to make of this idea. As she recounted at a debrief session a year later:

*At first I didn't understand what this [design idea] was about. Because it wasn't the design brief I had given you [i.e. to imagine infrastructure with different values]. I was like, "How is this going to help?" But you kept insisting on it,... kept coming back to it... After a while, I started to realize that this was actually one of the things that's interesting ... that they have had a really remarkable design history, all the crazy things they tried. And that was a really big insight for me, because before I had been pretty negative about the provincial attempts to modernize Newfoundland.... [G]enerally the academic attitude about the modernization schemes of the 60s and 70s is that... they didn't appreciate what was special about these places.... But [this design insight] led to [an] unexpected appreciation for what the then-designs were doing in anticipating a vision of the future and acting radically toward doing it.*

It was a shock for Sengers to recognize that 'our' design was not so different from 'their' design, "[t]hat all of the multiple past futures we had tasked ourselves with were in fact things that people had already designed, because people are always designing, [not just] the people that call themselves 'designers.'" Speculative design has been criticized for being detached from reality [2], but in this case, the line between what historical actors thought were 'practical' and what we as analysts might think was 'speculative' dissolved. For example, when Newfoundland, at the time the most impoverished, 'backward' province in

Canada, aimed to transform itself into a tourist destination, this was a wildly speculative design. It was also a wildly successful one, as 50 years later Newfoundland became Canadian's number one domestic tourist destination. Sengers began to realize that the framing of 'speculative design' we were using was based on an analytic stance on what is possible and impossible that her 'participants,' now long dead, were letting her know she got wrong. At the final design meeting, Sengers recounted that this insight led her to restructure her entire book project.

## DISCUSSION

Our goal was to explore the potential of knitting together design and ethnography in new ways outside of an idealized workflow in which ethnography provides 'inputs' to design practice. Here, we reflect on the consequences of our methodological commitments, and suggest ways forward.

### Knitting together ethnography and design

Our first commitment was to engage ethnographic insights with design research as they are being formed in order to widen the bandwidth of communication and allow design to inform ethnography. In an ideal HCI workflow, knowledge flows from participants to ethnographers to designers. In our cases, sensitivity to how the ethnographer could be perceived by her participants conditioned the kind of moves the ethnographer felt comfortable with the designer making. At the same time, the designer did not simply respond to the 'output' of the ethnographer but also commented on what the ethnographer was doing. The ethnographer did not just report to but talked back to design. Far from a linear workflow from 'input' to 'output,' the process was riddled with temporal eddies and feedback loops.

As hoped, we found that design moves repeatedly clarified ethnographic ideas. For example, in the first case, the designs were used to work through what family members thought or did, to scaffold theory development, and to articulate the moral role of the ethnographer. In the second case, Khovanskaya's shift in the design brief radically changed Sengers's understanding of the design history of her field site, breaking down a presumed distinction between analyst and participant stances.

The commitment to early engagement removes a gap between design and ethnography in the HCI workflow which implications for design are intended to bridge. It did not, however, seamlessly integrate design and ethnography. Instead, it slowed down the process of moving from research to design by forcing a conversation whose record became part of the field experience and design record. It added new mechanisms for making sense of field experiences beyond analytic techniques, through give and take. It also reinforced awareness that ethnography is not only about discovering what is true, but about providing foundations for further applications. But in practical collaborations time is often of the essence. At some point divergent thinking will need to shift to converge on a

product to develop; our experiences provide little guidance about when or how to make this shift.

### Understanding by misunderstanding

Our second commitment was to use speculative design as a language for embodying design insights and to inspire further design. We found that speculative designs inspired conversations that revealed new insights about the field and about the process itself. This, combined with the designs' tentative nature, made it easy to generate more and build on them as touchstones for a continuing conversation. Yet the overwhelming sense we had was that our data consisted primarily of *misunderstandings*, *misreadings*, and *misinterpretations*. That sounds frustrating, which it sometimes was. It also sounds dysfunctional. But the opposite was our sense on the ground, because misunderstandings and breakdowns were also opportunities for inspiration and clarification. Even in the ways designs misconstrued what is happening, they offered something toward the construction of an ethnographic account. Michael argues that speculative design can promote public understanding of science by playing the role of an "idiot" who naively proposes an unexpected or alien point of view [13]. What we see here is that it can play the same role with respect to ethnography. We see key three mechanisms by which misunderstandings between design and ethnography function to develop deeper understanding.

First, speculative design creates a sounding board for ethnographers, representing their fieldwork and ongoing analyses in ways that can connect ideas and motivate new ones. This process works by *making tacit ideas and assumptions concrete*, bringing them from the realm of tacit ethnographic understanding to the realm of the discussable. Even absurdly impractical designs such as the byzantine messaging application provided touchpoints for developing analytic theories of the field site by illustrating questions and contradictions the conversations presented. The designs act as an additional form of ethnographic documentation.

Second, speculative designs, even ones intended to document an interesting point raised by the ethnographer, often reveal aspects of the fieldwork that the designer had not quite captured correctly, some essence of what was at stake for the ethnographer. In this sense, these *designs work by getting it wrong*, by 'not quite working,' [50]; they provide productive resistance that allows ethnographers to hone their insights.

Third, we repeatedly saw how design represents an imaginary of the world described by the ethnographer. The image is somewhat familiar, but may be missing some detail or failing to capture some nuance. Alternatively, it raises to the ethnographer's attention in a new way something that previously seemed unimportant. In this sense, *speculative design defamiliarizes the ethnography* – the designer doesn't mean to misrepresent it, but inevitably s/he will. In some ways, every time an ethnographer relates stories from the field to an unfamiliar audience, the

audience's response acts to defamiliarize. But designs do this in a particular way: they communicate a projected lifeworld which contrasts with participants' lifeworlds as understood by the ethnographer. Being confronted with these lifeworlds, then, prompts the ethnographer to elaborate on how experiences in the field corroborate or counter the lifeworlds implicit in the designs.

A further consequence of our commitment to speculative design was that we did not develop concrete designs for deployment; the design ended up more in service to the ethnography. Moving forward, it would be interesting to explore linking speculative design with more fleshed-out products, for example by iterating the designs using higher fidelity representations, mockups, and prototyping. But in situations where the end goal is developing and deploying end products, constraints on the work process would be different and likely require different assemblages of method. One notable difference is in the power status differential between designer and ethnographer in settings where ethnography is seen primarily as a means to a desired, and more important, design end. This would likely significantly change the dynamics of conversation.

### Performing design and ethnography

Our third commitment was to set up a dialogue between designer and ethnographer as different roles, rather than collapsing them into a single role. Here, we were reinforcing a gap in current HCI practice, rather than eliminating one. Deliberately and somewhat performatively holding these two roles apart enabled a distance that frequently turned out to be productive. For one thing, this distance fostered the misunderstandings that lead to understanding we just described. In addition, the first case study revealed differences in moral stance to participants and lifeworlds between the designer and ethnographer. By separating these roles, the designer as modest witness provided opportunities to develop insight while allowing the ethnographer to stay morally within the field site.

Still, what we risked in deliberately holding these roles apart was cementing people into them and reifying design and ethnography as separate pursuits. It is crucial to remember that there is not 'an' ethnography and 'a' design to be connected. There are many different methods and stances within ethnography, and many ways to perform design. What we see in these cases is pairs of people enacting and assembling forms of design and ethnography on the fly. The ethnographers were in some sense performing for the designer and vice versa; each was encountering and reacting to the presence of someone with other expertise, assumptions, and values. There were tacit negotiations about what feedback to provide and how to do it; about what is OK and not OK to offer; about what is opinion versus professional expertise applied to the field. The setup forced the participants to reflect on how they were doing this and account for themselves in different ways. In some ways, it enriched their possibilities, in other

ways it reinforced their apparent positions. Thus, this approach *may* foster self-examination that can improve practice *or* it can lead to contests about who is correct about different misunderstandings.

In reviewing these cases, we are struck by how our focus on dialogue between design and ethnography inadvertently muted the voices of participants. This construction resulted because the first case was told from the point of view of the designer, who was deliberately held away from participants; in the second case, the ethnographer was no longer in the field and working primarily with historical data from deceased participants. The action we narrated was thus between the experts; at times there were contests over who got to speak for the people being studied. This framing sidelines participants in problematic ways and fails to leverage the potential of speculative design to incorporate the perspectives of participants, to help them imagine their lives differently, and to find ways to make that happen. Finding ways to do so is a necessary step forward; but it is not a straightforward extension, as suggested by Mazmanian's repeatedly raised concerns that discussing designs with her participants would undermine the nonjudgmental stance she needed to perform, giving them the sense she wanted to 'fix' what was 'wrong' with them.

### CONCLUSION

Our goal in this paper was to hybridize design and ethnography. That might sound like merging the two. But in practice we found that hybridization resulted in a double move. We eliminated a gap between them in the temporal workflow by putting ethnographic and design research into ongoing conversation. At the same time, we reinforced a gap between design and ethnography by deliberately separating their performative roles.

As a result of our choices, the gaps between design and ethnographic understanding became more real, more concrete and more available for discussion. Speculative design provided objects which embodied otherwise tacit assumptions around which conversations could be pushed forward. This worked not because the designs correctly represented ethnographic insight, but more in the ways it failed to do so; they "worked by not quite working." Underscoring the differences between design and ethnographic understanding led paradoxically to more understanding, rather than less. At the same time, the designer and ethnographer were put into a new relationship of accountability to one another, which found them negotiating their roles and insights in ongoing conversation. Indeed, it was likely the joint negotiation of those two performances in these specific spaces and times that made the tensions and misunderstandings actually useful.

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