Implications for Design

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ABSTRACT

Although ethnography has become a common approach in HCI research and design, considerable confusion still attends both ethnographic practice and the criteria by which it should be evaluated in HCI. Often, ethnography is seen as an approach to field investigation that can generate requirements for systems development; by that token, the major evaluative criterion for an ethnographic study is the implications it can provide for design. Exploring the nature of ethnographic inquiry, this paper suggests that "implications for design" may not be the best metric for evaluation and may, indeed, fail to capture the value of ethnographic investigations.

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INTRODUCTION

As intellectual disciplines develop, genre conventions emerge that shape both their research designs and their research outputs. In interdisciplinary areas such as HCI, early work in the field tends to be highly divergent in method and approach, as practitioners – as individuals, and collectively as a field – attempt to find ways to combine perspectives, conceptual frameworks, and methods. So, for example, finding an appropriate balance between theory and practice, determining broadly agreed-upon metrics for success, and developing common vocabularies for the problems and phenomena of study are all means by which, over time, common consensus about research is developed. Scientific disciplines are normative enterprises, where the process of peer review tends to encourage conformity to a core set of values and approaches [7].

This process can be seen at work in the research papers produced in a field. Bazerman [3] has detailed the ways in which transformations in the structure and tone of scientific publishing accompanied the transformation of the conduct of science itself, reflecting its increasing professionalization; the process of ensuring conformance to documentary standards is part of the "boundary work" by which disciplinary boundaries are maintained, and even the boundary between "science" and "non-science" is sustained [18]. Case studies illustrate the ways these conventions shape the development of scientific publications, scientific arguments, and scientific publications [13].

Unsurprisingly, then, as HCI has matured and developed a sense of its own disciplinary identity, conventions have arisen in the ways in which we conduct and describe our research. The peer review process employed by high-quality (and high-status) publication venues such as the CHI conference or leading journals is one important element in the machinery of genre production.

In this paper, I want to focus on a particular one of these genre considerations, both as a matter of research presentation and as a matter of research construction. The particular topic towards which my attention is directed is interesting not least because it reflects one of the interdisciplinary encounters that so characterize the work of the HCI community. Given our commitment to interdisciplinary working, it is valuable to step back and consider what happens when two disciplinary, conceptual, and methodological approaches come together, and how it is that the relationship between them is to be articulated.

The topic for examination is one that is strikingly familiar to practitioners of qualitative and especially ethnographic field methods, although experience suggests that it is also relevant to other research approaches. Loosely, I refer to it as the problem of "implications for design."

It has often been noted, not without some irony, that the canonical paper reporting ethnographic field results in an HCI context will close with a section entitled "Implications for Design."

This section may be long or short, comprising discursive prose or brief, bulleted items, but it nonetheless figures as a stable feature of ethnographic reports. Informal evidence

seems to suggest that the absence of this section tends to be correlated with negative reviews and rankings of the paper. A common lament to be found in reviews of ethnographic work is, "yes, it's all very interesting, but I don't understand its implications for design," or the somewhat more subtle (and intriguing), "this paper does not seem to be addressed towards the CHI audience."

I should state at the outset that, in referring to this as a problem, I do not mean to focus on the methodological concern (that is, how, on the basis of ethnographic fieldwork, implications for design might be derived.) Rather, I want to focus on the problem of the genre convention itself, that is, the politics and consequences of the way in which the "implications for design" arise as a primary evaluative criterion for ethnographic research. In framing it as a problem, I want to explore the ways in which the "implications for design" may underestimate, misstate, or misconstrue the goals and mechanisms of ethnographic investigation.

I will argue two primary points. First, that the focus on implications for design is misplaced, misconstruing the nature of the ethnographic entireprise; and second, that, ironically, in so doing, it misses where ethnographic inquiry can provide major insight and benefit for HCI research.

In what follows, I want to explore these questions by dealing in turn with four issues that arise around the problem of implications for design: the marginalization of theory; power relations between disciplines; a restricted model of the relationship between technology and practice; and the problems of representation and interaction. Broadly, some of these could be classified as "the politics of representation" while others could be classified as "the politics of design." Certainly, the considerations are political in a number of ways, and we will return to some overtly political issues at the end.

A HISTORICAL INTERLUDE
First, though, it is worth pausing very briefly to review some of the history of ethnographic practice and its adoption in HCI.

As a professional practice, ethnography arose within the discipline of anthropology. Anthropology itself has its origins in the Western expansionism of the nineteenth century. In North America, this took the form of the "salvage anthropology" of Franz Boas and colleagues, documenting the rapidly shrinking cultures of native Americans; elsewhere, it was associated particularly with colonial encounters between Europeans and the peoples of South America, Africa, the South Pacific, and elsewhere. Ethnography itself arose in the early part of the twentieth century, spearheaded not least by Bronislaw Malinowski in his work on the Trobriand Islands [28]. The emergence of ethnographic investigation marked a major transition in the practice of anthropology, emphasizing as it did the need to understand "the member's point of view." Where

anthropology had previously documented what members of other cultures *did*, ethnography argued that, through daily participation in everyday life, one could come to understand what members of those cultures *experienced* through their actions. In contrast to surveys and interviews, ethnography advocated long-term, immersive field work combining observation with participation. In the following decades, ethnographic field research became the sine qua non of anthropological inquiry.

At the same time, ethnography migrated into other social sciences, albeit with different flavors and emphases. The work of the Chicago School sociologists (Robert Park, Everett Hughes, Herbert Blumer, Anselm Strauss, Howard Becker, and more) was particularly influential in adopting ethnographic methods in sociological research. Much of the emblematic work of the Chicago School had two characteristics. First, it turned its ethnographic attention towards aspects of American urban life, bringing anthropological methods to bear on issues in locales quite different than those in which Malinowski had developed his methods. Second, though, it retained its sense of ethnographic distance between subject and object through inquiry into subcultures and "outsider" groups (such as tramps, prostitutes, and gamblers) and odd locations (such as public toilets and mental institutions.) Arguably, the uptake of ethnographic methods to study settings and people "closer to home" is a critical step towards the use of these methods to study technology users.

Within HCI, the adoption of ethnographic techniques is associated particularly with two trends. The first is the emergence of Computer-Supported Cooperative Work as an area of inquiry, which in turn placed an increasing emphasis on the social organization of activity, and hence on methodological approaches by which that social organization might be understood. The second was the Participatory Design (PD) movement, arising especially in Scandinavia, but with global influence. Politically, PD was strongly concerned with issues of workplace democracy and participatory involvement in the changes in working conditions implied by computerization; methodologically, it sought approaches in which member's perspectives were valued. For PD, ethnography may have been an expedient tool rather than an intellectually motivated approach, and indeed PD has always emphasized a pragmatic, multi-method approach. Nonetheless, through PD, CSCW, and allied perspectives, the use of ethnographic methods became more familiar to HCI researchers. They seemed to offer a means by which the complexity of real-world settings could be apprehended, and a toolkit of techniques for studying technology "in the wild." Grudin provides an overview of some of these trends [19].

This is a very partial view, and in the course of what is to come, there will be more to be said about both the history of ethnography within anthropology and its disciplinary considerations, and about the ways in which ethnography has been appropriated within HCI. This history, though,

sets a context for understanding how ethnography has been adopted in an encounter between social science and technological considerations in HCI research, and for reflecting on some of the consequences.

In what follows, I will draw in particular on three insightful explorations of the problems of ethnography and design in different contexts – Anderson's [2] exploration of the issue of ethnography and requirements, Ackerman's [1] reflections on the social-technical gap, Button's [6] comparison between different models for ethnographic analysis, and Suchman's [37] account of forms of ethnographic encounter between technologists and customers. They help to illuminate a complex and intricate set of disciplinary relationships, which will be addressed here through the four inter-related topics, starting with the question of the marginalization of theory.

THE MARGINALIZATION OF THEORY
As outlined above, ethnographic methods were originally brought into HCI research in response to the perceived problems of moving from laboratory studies to broader understandings of the social organization of settings of technology use. It might be more accurate to say, though, not that ethnography was adopted in HCI research, but rather that ethnographers were adopted in HCI research. That is, a number of social scientists who made use of ethnographic approaches turned their attention to questions of interest to the HCI community and found a positive reception for aspects of their work. The reason that it is important to make this distinction is that, as ethnographic approaches have gained more visibility and currency with HCI, some problems have attended the ways in which ethnography has been understood.

In particular, the dominant view of ethnography is that it provides to HCI researchers a corpus of field techniques for collecting and organizing data. The term "ethnography," indeed, is often used as shorthand for investigations that are, to some extent, in situ, qualitative, or open-ended. Similarly, the term is often used to encompass particular formulations of qualitative research methods such as Contextual Inquiry [5]. So, here, the defining characteristic of ethnographic investigation is taken to be its spatio-temporal organization -- that the ethnographer goes somewhere, observes, returns and reports.

Perhaps unsurprisingly, this reading of ethnography has often been aligned with the requirements gathering phase of a traditional software development model. Laboratory methods can provide certain kinds of answers to certain kinds of questions that can shape the design of a software system. By analogy, ethnography is often conceptualized as a set of field techniques that can provide different sorts of answers to different sorts of questions – in particular, questions about technology in everyday settings – that will stand, however, in much the same kinds of relation to design exercises.

This view of ethnography as purely methodological and instrumental supports the idea that "implications for design" are the primary or even sole output of ethnographic investigation. From this perspective, the reason to adopt ethnographic methods is not that they will generate quite different kinds of understandings from laboratory investigations, but rather than laboratory approaches are methodologically unsuited to the target domain.

In reducing ethnography to a toolbox of methods for extracting data from settings, however, the methodological view marginalizes or obscures the theoretical and analytic components of ethnographic analysis. Ethnography is concerned with the member's perspective and the member's experience, but it does not simply report what members say they experience. Even in ethnomethodological ethnography, which rejects sociological theorizing in favor of explicating observable practice, ethnography makes conceptual claims; it theorizes its subjects, even if the theories presented are the subjects' own [6]. To the extent that ethnography presents not simply observations but relationships between observations, it is inherently interpretive. Indeed, ethnography's outputs are often not analytic statements purely about members' experiences, but about how members' experiences can be understood in terms of the interplay between members and the ethnographer.

Anderson [2] insightfully explores the relationship between ethnography and requirements, paying particular attention to the way in which what I have called the methodological approach consistently marginalizes or obscures the analytic component of ethnography – and, importantly, how, in doing so, it both underestimates ethnography and fails to realize its potential. Anderson draws particular attention to three considerations.

His first is that ethnography must be seen primarily as a form of reportage. It is, after all, ethno-*graphy*; a form of writing and a way in which a cultural understanding is inscribed as a literary form. Writing, then, is central, and the ethnography is not, itself, the project, but the written form that is its final outcome. Consequently, we must pay considerable attention to its rhetorical form and construction. Much contemporary debate around ethnography has been animated by a close attention to ethnographies as texts, to the ways in which they implicitly or explicitly construct the roles of author and reader as well as the object of inquiry [8, 9, 16]. Ethnographies are texts, not veridical representations of the world.

Second, Anderson observes the role of particular rhetorical strategies, not least the juxtaposition of strategically chosen exemplars, such as, in one of Anderson's examples, patterns of sharing customizable software as explored by Mackay [26] and the marriage practices of the Bororo as detailed by Levi-Strauss [25]. Despite a certain ethnographic tendency to operate as "merchants of astonishment" [17], the goal of such juxtapositions is not merely to dazzle and surprise; rather, it is to reveal certain

underlying logics of social practice. Once more, this is fundamentally an analytic move; what is revealed is the conceptual organization of cultural settings, and, while the goal is to reveal and explicate rather than to create, the ethnographer is far from a passive agent in the production of this organization as a research outcome.

Third, Anderson emphasizes the reflexive character of ethnographic analysis. This reflexive character means that ethnography is not only "about" the culture under study, but equally, implicitly or explicitly, "about" the cultural perspective from which it is written and that of the audience to whom it is presented. Clifford Geertz famously described culture – the object of anthropological ethnographic inquiry – as "stories that people tell themselves about themselves," and, by the same token, by telling an ethnographic story about some Other, the ethnographer also tells a story about ourselves [30].

The question of subject position is particularly important here. Ethnographic data are not unproblematically extracted from a setting, but generated through an encounter between that setting and the ethnographer. Students learning ethnographic methods for the first time, especially those from positivistic scientific traditions, frequently express the concern that the ethnographer, as an instrument, must inevitably distort the data and introduce an element of uncontrolled subjectivity in contrast to alternative approaches. To the contrary, though, quantitative and survey techniques depend upon subjective judgments about the categories of observations which remain implicit in the data [4, 14], while by contrast ethnographic methods explicitly require that the ethnographer incorporate the context of the social relationship between ethnographer and subject or setting. So, for example, ethnographic understanding depends critically on recognising that the view of the setting that one gains (or the interview responses that one gains) is inevitably shaped by ones' subject position – one's ethnic, sexual, or class markers, one's access to resources and power, one's introduction and social position, etc. One way in which the methodological view of ethnography practiced in HCI often marginalizes or obscures the analytic component of ethnographic investigations is to cast the ethnographer as a channel for the relatively straight-forward movement of data from the field to the design studio. As Diana Forsythe tellingly commented, an ethnographer is not a tape recorder [12].

Button [6] addresses this question in his review of ethnographic approaches in HCI research. As an ethnomethodologist, he approaches ethnographic inquiry from a quite different position than the classical anthropological approach that I primarily address here, and he provides an ethnomethodological critique of the forms of theorizing at work in what he terms "classical" ethnography. Nonetheless, both classical and ethnomethodological ethnography can be contrasted with what he terms "scenic fieldwork" (that is, a form that might be summarized as "I went there and this is what I saw") by

focusing on the "analytic auspices" under which the ethnographic inquiry is conducted. As Button notes, ethnographic analysis must reflect a set of analytic commitments, and indeed it is the working out of these analytic considerations that is the work of the ethnography.

There are two issues at work in this question of analytic auspices. The first is that what Button describes as "scenic fieldwork" – and what is often presented in a CHI or HCI context as ethnographic research – frequently neglects the analytic aspects of ethnographic work. The second, as Rogers [35] notes, is that in some cases the gear-change from ethnographic description to design implications is not itself analytically warranted; for those ethnographers working from an ethnomethodological perspective, design becomes an occasion for tacit theorizing in ways that may be inimical with their analytic position.

In summary, one concern about the "implications for design" approach is that it involves a reading of ethnography as purely methodological, and by the same token, as equivalent to other empirical approaches in the HCI arsenal, to be selectively deployed as needed. The ethnographer, in this view, is a passive instrument, a lens through which a specimen setting might be examined, with the ethnography providing an objective representation of that setting. What is missed is the extent that ethnography is always, inherently, a perspectival view, and that this perspectival quality is critical to what ethnography is.

POWER RELATIONS
The second consideration illuminated by the problem of "implications for design" is a more broadly political one, concerning the relationship between the constituent disciplines in HCI.

First, it is hard to deny the power differential between engineering sciences and social sciences in terms of academic and funding structures; a brief perusal of the relative size of research grants will demonstrate that amply. This disparity has consequences both large and small. At a large scale, it creates a status hierarchy in which engineering demands tend to override social ones; at a small scale, it results in an imbalance in participation in scientific meetings (since social scientists are rarely in a position, for instance, to fund their own travel to program committee meetings and conferences, as venues like CHI normally demand.) Despite these huge practical obstacles, I want here to focus on some more conceptual concerns.

The particular issue I want to explore is how the idea that the goal of ethnography is to generate implications for design construes the disciplinary relationship. There are three issues here. First, the "implications for design" model postulates design as the natural end-point of research inquiry, and therefore designers as the gatekeepers for that research. Second, in doing so, it places ethnography outside of the design process itself. Third, by the same token, it places those whom ethnographers study outside of the

design process. The third consideration is one that I will return to later, but the first two are more immediate topics.

The question at stake here is that which underlies *any* interdisciplinary effort – the difficulty of achieving a true synthesis rather than degenerating to a case where one disciplinary is essentially in service to the other. Certainly, this is commonly understood in computer science; as computation has become an increasingly important element of other scientific enterprises, computer scientists are wary of becoming programmers in service of other disciplines.[1]

Clearly, in this particular case, the issue is that design is the tail that wags the dog. The distinction to be drawn is, perhaps, that between "user interface design" and "human-computer interaction" as domains of study. If the interaction between people and computers – or between people through computers—is itself a domain of enquiry, then the call for ethnographic studies to deliver implications for design is somewhat disingenuous… especially perhaps at a conference entitled "Human Factors in Computing Systems" (as the CHI conference is more formally named.) It suggests, instead, that ethnographic investigations (indeed, HCI research studies) are relevant only in as much as they support design (and not simply in terms of helping to understand human-computer interaction). While it is clearly important, in a design- and technology-oriented field, to be concerned with highlighting and correcting problems in current technologies, ethnography is not, for a range of reasons, necessarily best oriented towards the creation of new sorts of technological or consumer artifacts.

Sometimes, after all, the most effective outcome of a study might be to recommend what should *not* be built rather that to recommend what should. More to the point, an analysis of the cultural and social organization of some particular setting or occasion is often best articulated independently of specific systems, technologies, or design briefs.

As a brief example, take Miller and Slater's study of Internet technologies in Trinidad [31]. The power of their analysis does not lie in specific recommendations about the ways in which technology might be best designed to fit into a Trinidadian context, but lies rather in their critique of the ways in which the domains of "natural" and "virtual" worlds is conceived and argued through information technology. Through a close analysis of the role of internet technologies in everyday practice, Miller and Slater demonstrate how the technology does not create a place outside of everyday life, but rather provides a new platform upon which everyday cultural experiences can be performed – how, referring to Geertz's comments cited earlier, the internet "[helps] people to make good on

pledges they have already made to themselves about themselves.." They show how the Internet provides Trinidadians with another way of "being Trini" – indeed, ways of being Trini that the practical realities of everyday life may imperil. In the face of massive outward migration, for example, the Internet provides people will the ability to maintain patterns of social and family contact that is critical to their self-conception as Trini. What Miller and Slater question is the conventional separation between virtual and real domains; the Trini experience of the internet, though, is one that is coextensive with, and indeed grows out of, Trini experiences of everyday life.

This calls into question a number of the assumptions that lie behind the notion of "implications for design."

First, who is doing the design in these scenarios? There are at least three potential design actors here – the ethnographers, the technologists, and the people themselves. A very particular set of relationships between these constituencies is postulated by the traditional focus on implications for design (in particular, that a designated and demarcated group of "designers" are empowered to perform design, of which others are passive consumers.)

Second, and perhaps more problematically, it causes us to reconsider just what design looks like – the technology itself, or the form of its local adaptations and appropriations in particular social and cultural contexts? I will explore this in more detail in the next section.

Third, by focusing on specific designs as the point at which ethnographic and technological considerations meet, are we doing justice to the ethnographic perspective, and are we getting the best technological outcomes? At what point can ethnographic contributions have their greatest impact upon technology development and deployment? Schmidt [36] claims that the most influential workplace studies in CSCW have been ones that did not harness themselves to specific design efforts or limit their discussion of implications to then-available design opportunities.

Fourth, and consequently, is the success or value of an ethnographic investigation best determined by what design decisions it can support, or by what forms of learning it might enable? What forms of knowledge can ethnographic studies generate?

TECHNOLOGY AND PRACTICE
Following on from some of these questions, I want to examine the relationship between technology and practice postulated by the "implications for design" approach. In particular, as discussed above, I want to highlight two assumptions implicit in this approach.

First, it constructs ethnography as a point of mediation between, on the one hand, a domain of everyday practice and, on the other, a domain of technological design. Second, it implies that people will encounter technology as something that is encountered just as it was designed, and is

appropriated or incorporated into practice. Each of these assumptions is problematic from the ethnographic perspective.

Ackerman [1] provides the metaphor of the "social-technical gap" – the gap, essentially, between our technological "reach" in the design process and the realities of technologies-in-practice. In drawing attention to the gap, he draws attention, too, to the notion of design as a bridge. It shows how, through a range of methodological innovations (such as, perhaps, the incorporation of ethnographic methods alongside controlled laboratory studies), HCI has sought to narrow the gap or to bridge it. Ackerman critiques the intuition that people adopt and adapt technologies because the technologies are poorly designed, and that better designed technologies would obviate the need for such adaptation and appropriation.

By contrast, ethnographic perspectives suggest a different perspective on the creative processes by which people put technology into practice. In particular, these are seen as natural consequences of everyday action, not as a problem to be eliminated. Technology, here, is a site for social and cultural production; it provides occasions for enacting cultural and social meaning. As with technology, so also with space, gender, family, time, animals, food, death, emotion, and everything else.

Seeking to close the gap through the application of ethnographic methods is a contradiction in terms; the gap is where all the interesting stuff happens, a natural consequence of human experience. Design is critical, but designs must always be put to work in particular contexts, adopted and adapted by people in the course of practice.

In this way, the domain of technology and the domain of everyday experience cannot be separated from each other; they are mutually constitutive. The role of ethnography, then, cannot be to mediate between these two domains, because ethnography does not accept their conceptual separation in the first place. By introducing and focusing on the notion of the gap, Ackerman suggests not that it is the fundamental problem to be solved, but rather that it is the fundamental phenomenon to be understood.

It is practice that gives form and meaning to technology; the focus of ethnography is the ways in which practice brings technology into being. From this perspective, and drawing again on the notions of reflexivity raised earlier, we might suggest that what ethnography problematizes is not the setting of everyday practice, but the practice of design.

Certainly, though, what it does is to refigure "users" not as passive recipients of predefined technologies but as actors who collectively create the circumstances, contexts, and consequences of technology use. HCI research has, of course, long had an interest in aspects of the ways in which people might configure, adapt, and customize technologies [e.g. 10, 27, 32]. This ethnographic view, though, focuses not simply on how people explicitly transform or program

interactive technologies, but how those technologies take on specific social meanings through their embedding within systems of practice. As a focus of HCI research attention, "design," in this sense, goes beyond giving form to technologies to encompass appropriation – the active process of incorporation and co-evolution of technologies, practices, and settings.

REPRESENTATION AND INTERACTION

As I noted in my very sketchy historical introduction, anthropology's history is linked to that of Western colonialism in at least two ways. In its early days, as an armchair discipline, anthropology relied to a great extent on the reports of travelers and colonial officers for the data from which accounts of cultural practices were formulated. Subsequently, however, the relationship was inverted, as effective colonial administration came to depend upon the understandings of indigenous peoples that anthropologists could provide. Arguably, state support for anthropological investigation was motivated primarily by this need.

In subsequent years, however, anthropologists have taken a different view, one that reflected a growing disquiet with their relationship to the colonial apparatus. In particular, anthropology has become more conscious of, and explicitly reflective about, the power dynamics involved in ethnographic representation, and the nature of ethnographers' engagement with those being studied.

Suchman [37] uses this history to reflect on her own and her colleagues' experiences in conducting industrial, design-oriented ethnography of the sort that is often reported in HCI. In particular, she draws a telling analogy between the objective, instrumental, and actionable accounts of social life that colonial administrators required of early anthropologists, and the similarly objective, instrumental, and actionable accounts of users and workplaces demanded by traditional design processes. Suchman argues for a reconfiguration of these relationships, in which the role of industrial or design anthropology is not to report on the habits and practices of a set of potential users or consumers of technology, but rather to frame encounters and partnerships between those on different sides of the production/consumption relationship. The "artful integrations" that Suchman draws attention to as the outcomes of these encounters are ones that attempt to respect and amplify local practice rather than to represent it for the purpose of design.

What Suchman offers is both an insightful critique of industrial anthropological practice and an eloquent and inspiring articulation of an alternative. That said, though, it is important to consider the kinds of settings within which the sorts of encounters and partnerships that she describes might be forged. Suchman's work has been strongly associated with the Participatory Design (PD) movement, as originated in Scandinavia but adopted, in different forms, more broadly. Participatory Design, however, has traditionally been practiced as a form of political activism

and, as Tip O'Neill famously commented, all politics is local. That is, PD is good at staging encounters between particular sets of people, at particular times, around particular topics. What is more challenging is to relate the local to the global, and to understand how these localized encounters might have global import.

It may be that some insight is to be found in those places where anthropologists have sought to use ethnographic materials and understandings not simply to illuminate particular kinds of practices, but to more broadly formulate the policies by which encounters between different interest groups are mediated. One interesting example concerns the ways in which Australian authorities have attempted to respond to conflicts over land rights [21, 34]. Ethnographic inquiries can illuminate the practices of particular peoples, but it does more; through this, it explores the generally operative principles by which these practices are shaped, shared, reproduced and transformed. The question is how specific practices become exemplars of ways of encountering the world – again, how the world (and specifically here the land) becomes a site for cultural production. The problem then becomes an epistemological one, one concerning the forms of environmental knowing that are reflected in land disputes; these disputes have their origins not simply in territoriality, but in the different kinds of knowledge of land and landscape that characterize each party. The question then becomes not "what do these people know," but rather, "of what does their local knowledge consist, and how is it manifest?" By moving to this conceptual level, while retaining a firm link to detailed accounts of practice, we can start to understand how policy can be shaped around the very notion of clashing epistemologies (rather than, say, around one particular view of the world or another.)

This is, perhaps, a way in which Suchman's formulation of the ethnographically mediated encounter can be supported in the context of generalized design. But, again, what is critical to recognize here is that this power lies in the ethnographic imagination rather than the ethnographic toolbox; it requires a move beyond particular "implications for design." A sensitivity for the nature of the interaction between ethnographers and their subjects and the sorts of representations of cultures and practices that result requires a different reading.

MOMENTS AND MODELS
Finally, let me amplify this last point a little in comparing two views of what ethnographies provide.

The view of ethnography as "scenic fieldwork" focuses, if you like, on "moments." That is, it offers descriptive, historical accounts – "here is what happened." On the basis of these historical tales, we can all conclude what should be built in order either to support what happened (if it is a tale of ingenuous practice) or to prevent what happened (if it is a tale of failed or obstinate technology.)

The alternative account is of models for understanding social settings. What is critical here is not the account of what happened, but the explanatory frame by which this account can be organized and the narrative that connects historical moments. As noted in Forsythe's comment above, ethnography is not a historical practice and the ethnographer not merely a recorder of events as they unfold; this is to confuse ethnography's method (the detailed examination of everyday life) with its product. Whatever the particular "analytic auspices," in Button's phrase, ethnography provides new lenses through which to see the world. The question to be resolved is, what is to be done with this sort of work?

WHAT'S TO BE DONE
Since I have been unremittingly critical to this point, it is time to take a more positive attitude. My goal is not simply to dismiss the way in which ethnography has been interpreted within HCI, or the reception that ethnographic materials receive. Nor, by any means, is it to suggest that ethnography is not useful to design, to be condemned to permanent academic irrelevance. I would like instead to contribute to the ongoing debate about the ways we can most fruitfully understand and make use of those materials. I believe that the turn towards approaches that can illuminate the relationship between technology and practice is important for our field. I believe, too, that ethnographic approaches can help us move beyond simple dualisms of technology and practice and the "layer cake" models that they engender [24].

In that spirit, then, my argument is certainly not that design recommendations are poor things to include in ethnographies. Tight couplings of ethnographic materials and design practice have been both successful in design terms and productive for the research community (e.g. the Lancaster work on air traffic control [22].) I do want to suggest, however, that the presence or import of "implications for design" are not the appropriate criteria by which ethnographic contributions should be judged. In fact, even in cases where such recommendations can be concisely and effectively formulated, to focus on those recommendations as the "outcomes" of ethnography at best distracts from, and often completely obscures, the analytic and conceptual work that lies behind, which is often where the substantive intellectual achievement is to be found. What matters is not simply what those implications are; what matters is *why*, and how they were arrived at, and what kinds of intellectual (and moral and political) commitments they embody, and what kinds of models they reflect.

In thinking about ethnography (or indeed any social science contribution), it is important to distinguish two levels and two sorts of contributions – the analytic and the empirical. The empirical materials comprise the fundamental observational material – the "this is what happens" detail of ethnography. The analytic materials comprise the ways in

which these data are theorized, understood, organized, juxtaposed, interpreted, and presented in order to make an argument that reveals something about the setting under investigation. Observations are always theory-laden, and any encounter between ethnographer and field involves a whole host of analytic positions, so a hard-and-fast separation would be impossible. But at least as far as HCI is concerned, we can distinguish between these two as ways in which an ethnography make a contribution – in terms of what it says happens, and in terms of the ideas it offers for thinking about social life.

The call for "implications for design," I would argue, drawing upon the notion of requirements in traditional software engineering, is a request for empiricism. It is a request that the ethnography provide "facts" – when people work, how they talk to each other, what they do when they sit down at the computer, and so forth – which can be translated into technological constraints and opportunities. Certainly, many ethnographic studies can provide such things (although it is important not to ignore the role of the ethnographer as interpreter and framer of these "facts" rather than as a passive mirror of the site.)

What has traditionally been more complicated has been to establish a deeper, more foundational connection between ethnography and design – to look for a connection at an analytic level rather than simply an empirical one [11]. The analytic contributions tend not to be seen as holding implications in the same way.

It is not that these do not have profound implications for design, because they do; indeed, often more profound than a laundry list of facts and features. Their impact, however, is frequently more diffuse. They provide us with new ways of imagining the relationship between people and technology. They provide us with ways of approaching design. However, they typically go beyond specific instances of design. More to the point, they draw, in general, on the fundamental repudiation of a traditional separation between designer and user, between technology and practice. To the extent that these implications are not formulated as "implications for design," it is because the categories of design, user, and designer, are themselves in question.

In turn, one way of reconsidering the role of ethnography in HCI design is to question the concept of the ethnographic site. One of the more significant transformations of contemporary anthropological ethnography has been the concept of "multi-sited ethnography" as developed particularly by George Marcus [29]. Whereas traditional ethnographies since Malinowski have focused their attention on a geographically bounded field site, Marcus observes that, in the context of globalization, culture can no longer be adequately circumscribed in such a matter. The Trobriand Islands can no longer (if it ever could) be approached as a "realm apart," but must be understood within a broader web of relationships to other parts of the world and other forms of cultural practice (including, for example, their connection to international academic anthropology, and to the cultural settings in which ethnographic results are presented [30].) Contemporary ethnography, then, must concern itself instead with transnational flows of people, capital, and culture. This is perhaps especially relevant when considering information technologies – technologies that are both means and embodiments of these globalized practices. Miller and Slater, for example, understand the Internet in terms of the ways it allows Trinidadian cultural practices to be sustained despite the massive outward migration of peoples from Trinidad; the Internet is a means by which cultural practice operates within a globalized economy. When we attempt to discharge the mythology of the field as part of a professional rite of passage, then we are forced to consider the concept more critically [20].

What might happen if we started to think more critically about the "site" of ethnographic studies in HCI? In what ways can we separate the technical practices of one organization or set of users from those others with whom they interact, from whom they learn, and with whom they exchange information, artifacts, and people? We might, for example, reconfigure the ethnographic project in HCI by thinking of studies not as independent investigations, but rather as contributions to a broader ethnography corpus whose "site" is not a particular office, campus, or city within which technology is used, but rather the global technology culture itself, or the intersection between cultures of technology production and consumption. Certainly, this suggests that we might need some very different criteria for assessing the role and contributions of ethnographic studies.

IMPLICATIONS FOR DESIGN

What should we conclude? And should we, in deference to decades of CHI tradition, formulate these as implications for design? Arguably, and ironically, there *are* some implications for design to be drawn out here – not for the design of interactive artifacts, but the design of research studies and of research programs.

One reason to draw attention to this question of ethnography's "analytic auspices" [6] is to be able to appropriately compare methods and assess results. For instance, given HCI's legitimate interest in inquiring into complex, socially-organized settings, a range of methods have been proposed which we might call "discount ethnography" techniques by analogy with the discount usability techniques of the 1990s. Prominent examples are Contextual Inquiry [5] and Cultural Probes (and related approaches) [15, 23].

Contextual Inquiry provides designers with a series of tools and techniques for understanding social settings and organizing their observations to derive models for design. Based largely on interview data, CI is aimed at those with neither the training nor the time to conduct ethnographic

work; instead, it provides a set of methods whereby designers can move out from laboratory settings to the real world as a basis for design inspiration.

Cultural Probes (and a series of related approaches such as Technology Probes) arose within the design community as a means to conduct broad-based surveys of user experience. Cultural probes are self-report packages of artifacts, questionnaires, and exercises that encourage users to reflect on their experience, often provocatively. The data generated by the probes are intended to provide inspiration rather than the basis for analysis.

At first blush, these techniques bear a certain broad resemblance to ethnographic methods, in terms of their open-ended approaches and reliance on qualitative rather than quantitative materials. Within HCI research, they are often proposed as alternatives to "full" ethnographic methods when time is at a premium. At the same time, though, they clearly fail to capture what an ethnography captures, given that they lack the coupling of analytic and methodological concerns, and, again, locate the topics of interest outside of the relationship between ethnographer and subject. Contextual Inquiry and Cultural Probes, then, are not simply "discount ethnographies" – instead, they produce results that are inherently quite different. Again, the topic of their inquiry is quite legitimate; but arguably, they are rejections rather than variants of ethnographic inquiry and its topics – techniques that *do* place primary emphasis on implications for design.

I believe firmly that ethnographic research has much to contribute to HCI design and deserves a central role. However, the problem of the nature of this relationship remains problematic and needs to be addressed [33]. What I have tried to argue here is that a bullet list of design implications formulated by an ethnographer is not the most effective or appropriate method. Ethnography provides insight into the organization of social settings, but its goal is not simply to save the reader a trip; rather, it provides models for thinking about those settings and the work that goes on there. The value of ethnography, then, is in the models it provides and the ways of thinking that it supports. Ethnography has a critical role to play in interactive system design, but this may be as much in shaping research (or corporate) strategy as in uncovering the constraints or opportunities faced in a particular design exercise.

At the outset of this paper, I focused primarily on the genre of ethnographic presentations at CHI and related venues. In referring to genre here, I mean to point not simply to media form but to the socially-organized nature of documentary practice. In particular, what is at issue here is not the nature of ethnographic practice as such; rather, it is the appropriate criteria for evaluating and understanding ethnographic inquiry and results. The central question is, what makes ethnographic work valuable in research in HCI?

I have had two goals in writing this paper. The first has been to offer an account of ethnographic research that places it in a broader historical context. The second has been to open up a debate about the relevance of ethnographic work for HCI research. That ethnographic studies have something to say to HCI designers is broadly recognized; I have argued, however, that a focus on implications for design reads ethnographic inquiry too narrowly, constraining ethnographic studies in ways that fail to do justice to the kinds of insights that they can provide. As a spin-off benefit, perhaps this might also help to transform our evaluative criteria for ethnographic papers. Frankly, I doubt that this is the last CHI paper on ethnographic work that will find itself forced to end with "implications for design"… but it is certainly nice to think that this is a possibility.

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