Boundary Troubles: Here, There, Design, Make, Research

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CHI'16 Extended Abstracts, May 07-12, 2016, San Jose, CA, USA

ACM 978-1-4503-4082-3/16/05.

<http://dx.doi.org/10.1145/2851581.2886424>

Abstract

We stage a dialogue between two areas of growing interest in HCI: making cultures and research through design. Both have only recently gained momentum, and so each of their proponents are demarcating—often too sharply—who and what is to be included in their programs to legitimate their work as a concern of and contribution to HCI. Drawing from diverse engagements with making and research through design, the panelists and discussant will explore positions concerning the relationship between research, design, and making. An underlying goal of the panel is to revisit the inclusionary and exclusionary impulses central to the necessary activities of research agenda formation, theory and methodology construction, and legitimation for both making and research through design.

Author Keywords

Making; research through design; legitimation; innovation; transnational; critical discourse.

ACM Classification Keywords

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

Introduction

Much has been written in HCI in the last decade about making, craft, and design as sites of inquiry, research, and/or disruptive innovation. Over the years, two research agendas have emerged: one on making and

Research through Design

RtD is "an approach to conducting scholarly research that employs the methods, practices, and processes of design practice with the intention of generating new knowledge. People carrying out research using RtD generally reject the idea that research is synonymous with science. Instead, RtD frames design inquiry as a distinctly separate activity from engineering inquiry and scientific inquiry. RtD draws on design's strength as a reflective practice of continually re-interpreting and reframing a problematic situation through a process of making and critiquing artifacts that function as proposed solutions [17, 19]. RtD asks researchers to investigate the speculative future, probing on what the world could and should be."

Source: Zimmerman & Forlizzi [22]

fabrication as an emerging computational and cultural practice, and the other on research through design (RtD) as an inquiry methodology that tightly couples design activities and IT research and theory construction. A major goal of this panel is to destabilize boundaries between these two agendas as a means to think more generally about relationships among practices of making-craft-design and inquiry-research-innovation and where they are envisioned to originate. First, we introduce the two agendas.

Cultures of Making

HCI's making research agenda emphasizes emergent cultures of technology production outside the familiar research laboratory: amateur producers, hackers, makers, repair workers, tinkerers, and start-ups [1, 2, 11, 7, 15, 18, 20]. This proliferation of technology production has often been attributed to factors such as the lowering of hardware costs, the rise of maker- and similar co-working spaces with shop, maker, and other tools/machines, and a neoliberal economic context that emphasizes self-reliance.

HCI researchers and practitioners have contributed to making and tinkering with new digital and physical materials [3]. Another strand of HCI making research examines diverse cultures of technology production. Much of this research has taken place outside the West, *e.g.*, [9, 10, 13, 21]. For example, cities like Shenzhen in the south of China or Taipei, Taiwan are epicenters not only of the production of things, but also of ideas--albeit often unrecognized as such in the West [14, 12]. A key finding of this research is that making, design, and other "creative industries" are often strategically positioned to contribute to projects of nation building and asserting a position on the global stage. Such stud-

ies decontextualized dominant narratives of IT innovation as narratives of Western privilege and ideology.

Research through Design

The research through design thread has sought to construct—through a mixture of theory-building and case studies—a research practice built around design practices. It proposes an alternative to the user-centered, social scientific framing of design research that is dominant in HCI and CSCW.

RtD researchers and practitioners are actively debating the fundamentals of their emerging practice: a key issue is how best to respond to skepticism about RtD from a scientific perspective: how is it legitimated, validated, or generalized [8]? Needing to make an argument for their own legitimacy, RtD shies away from anything but the strongest examples and tends to appeal to authoritative sources, such as the design thinkers cited in the quote in the RtD side bar, or Gaver's use of Karl Popper in [6]. These sources are mostly white Western men.

Cross-Pollinating Making and RtD

This panel seeks to support the cross-pollination of two hitherto separated threads of HCI research that we believe are on a converging trajectory: making/fabrication in relation to inter-trans-national IT/innovation on the one hand, and RtD as a major emerging HCI practice on the other. In bringing these two threads into explicit dialogue, we hope to (a) bring an RtD and design research perspective to international IT innovation, and (b) challenge the Western-centrism of current RtD.

Both HCI agendas spend energy on legitimacy issues. For non-Western making, the legitimacy issue is whether non-Western making practices are merely poor

copies of their Western counterparts or whether they can justifiably be seen as sites of expertise. For RtD, the legitimacy issue is whether design results generalize—if so, then how can the particular and general be bridged [4, 6, 8]. If not, then how can it be “research” at all? As non-Western making seeks to legitimate itself alongside Western practices and in Western-dominated discourses, RtD is pushed to defend and define itself in relation to the most hallowed (Western) canons of design and research. Against these tendencies, this panel sets out to explore the following questions:

- Can and should makers who are committed to intervening in the status-quo benefit from an improved engagement with RtD, and if yes, how?
- How might RtD theories and methods be enriched were they informed by diverse cultures and practices of making? Is it possible to inform RtD with new cases without diluting it?
- How do diverse forms of Western power shape the development of both making and RtD? Is it possible to overcome the West/non-West divide without further reifying it?
- How are cultures of making and RtD resourced? How does government policy, the present research grant scene, and entrepreneurship contribute to, shape, and even undercut making and RtD?
- How are paradigm shifts like making and RtD legitimized? Who gets called upon to participate? What sites and voices are excluded?

Panel Organization

This panel stages a dialogue involving the two research agendas of making and RtD. Specifically, it features panel presentations/positions from three researchers of making beyond familiar sites of innovation: Kaiton Williams’ research on technology development in Jamaica; Silvia Lindtner’s research on making in Shenzhen, China; and Lilly Irani’s research on design in India. All

three projects discuss the ways that technology development, making, and design are inflected by distinctive cultural practices and social policy as they envision preferred futures. They also show that the making and designing of things and artifacts is also about the making of modernity and individual and national aspirations of global belonging.

Responding to the panel is John Zimmerman, a theorist of Research through Design. Zimmerman is open to, but also somewhat skeptical of, claims that maker cultures could be doing RtD. His role is to reflect on ways that the panelists’ studies could have uptakes for RtD and perhaps even challenge some of its underlying assumptions and values, as well as ways that RtD theories, methods, and practices could potentially inform research with expert communities in entrepreneurship and tech innovation.

The panelists and discussant will have an interactive discussion, to include lengthy Q&A with the audience. The panel will be moderated by Shaowen Bardzell, who is both engaging in an ethnography of IT innovation in Taiwan and also practicing and theorizing RtD and critical design. Jeffrey Bardzell will chair the panel to introduce the topic, manage timing, and guarantee audience engagement.

Panelist Statements and Bios

Following are brief statements prepared by each of the panelists’ and bios to situate their work.

Kaiton Williams (Panelist)

As part of a 25-year plan to drive the country to Developed Nation status, the Jamaican government has partnered with international agencies to foster sites of technology development. Grounded by ethnographic engagement within these organizations and design

teams, I draw on the work of Caribbean area scholars to interrogate the relationships between making, identity, and inquiry in these spaces. I argue that the ideals and approaches in use, while seemingly chaotic and underproductive from outside the island's borders, actually reflect a cosmopolitan and instructive acceptance of radically divergent values and meanings—one that is grounded in the regions' early fueling of the same Western modernity now used to separate the teams from their potential audience. And where critics have pointed to a lack of completed projects, I argue that the primary direction of making in these spaces is not the artifact but the personal and national self, wherein the making of new things often lapses into a reassembly of historical fragments.

BIO: Kaiton Williams is a PhD Candidate in Information Science at Cornell University. His dissertation "Feats, Faiths, and Futures" is sponsored by the National Science Foundation and focuses on cultures of technological production in Jamaica, and their relationship with notions of progress, modernity, and reformation.

Silvia Lindtner (Panelist)

Making is often understood on Western terms, i.e., as individual empowerment and democratization of technology production, carrying the potential to disrupt established industries. Those who advocate making as a new era of computing distinguish it from non-Western practices of production: the printing of a plastic rabbit with an affordable CNC machine in a hackerspace is "making," while the producing of a hoverboard in a factory in Shenzhen is not. Drawing from more than five years of ethnographic research with diverse sites of making in China, I show that distinctions of making vs mass production are simultaneously extended and disrupted by legitimacy making efforts in the Global

South. The Chinese government, for instance, officially endorses making to 'upgrade' manufacturing from 'backwards' and copycat production to a Western model of design. In contrast, China's makers position Chinese manufacturing as expertise and as crucial to the democratic potential of making. I argue that making is as much about the experimentation with digital fabrication as it is about the making of modernity and articulation of global belonging.

BIO: Silvia Lindtner is an Assistant Professor in the School of Information at the University of Michigan. Her research investigates transnational making and entrepreneurship cultures in China, focusing on their relations to global discourses of innovation and national aspirations of modernity. Her research on this topic has been supported by the NSF, IMLS, and Intel, and published in the fields of HCI, CSCW, Chinese Information Studies, and STS.

Lilly Irani (Panelist)

Drawing on five years of work on the ethnography and history of design in India, I will argue that rather than locating expertise, we might begin by asking where and when is design? I illustrate the stakes of the question by explaining how Indians make distinctions between "design" and "jugaad"—two forms of intentional making with very different connotations. Design is valorized, associated with planning, expertise, and modern technocracy. Jugaad, on the other hand, is the art of the uniquely Indian hack or workaround, but seen as disordered and unstable. With this analysis, I hope up questions of how Western histories of order, progress, and reason haunt non-Western, contemporaneous formulations (and, as Kavita Philip has argued [16], the non-West haunts Western concepts as well). Rather than seeing the non-West as a space apart, we must analyze

these relationally without erasing the power relations that elevate design above other forms of making.

BIO: Lilly Irani is an Asst. Prof. of Communication & Science Studies at UC-San Diego. She is writing a book on cultural politics of innovation in transnational India. She is a co-founder and maintainer of digital labor activism tool Turkopticon. Her work has appeared at CHI, New Media & Society, Science, Technology & Human Values, and South Atlantic Quarterly.

John Zimmerman (Discussant)

Makers create material things with 3D printers and CNCs. They have destabilized the definition of industrial design that emerged when skill craftspeople quit making finished products and started designing for manufacture. I view this as similar to how desktop publishing disrupted graphic design and how digital video and online video sharing disrupted filmmaking. RtD is a constructive research approach. Skilled designers research by making things that investigate if different futures could or should be. Few makers could practice RtD. Most lack a deep tacit knowledge of their tools and materials needed to envision a preferred future.

BIO: John Zimmerman is an interaction designer and researcher at Carnegie Mellon's HCI Institute. He works to understand, describe, promote, critique, and advance RtD as a research method within HCI and IxD. This approach attempts to envisioning and assessing possible futures, with the hope of steering development of new technology towards a preferred future.

Shaowen Bardzell (Moderator)

Common to both making and research through design is the notion that skilled acts of fabrication can contribute to research. This is not the banal claim that makers and designers learn stuff in their practice, but rather

the claim that the *potential* is there for constructive activity to disclose preferred futures—in the forms of design concepts, constructive inquiry methodologies, and/or culturally specific sociotechnical imaginaries. That potential is not always realized nor even intended in practice. However, one service make and design researchers can provide is to document, account for, and elaborate the implications of it when it is.

BIO: Shaowen Bardzell is Associate Professor of Informatics and Computing at Indiana University. Her research explores the contributions of design, feminism, and social science to support technology's role in social change. Recent research foci have included criticality in design, care ethics and feminist utopian perspectives on IT, and culture and creative industries in Asia.

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