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CONFERENCE THEME

Friction—a force of resistance, creativity & change

Friction is a function of the everyday. The experience of friction can feel uncomfortable or constraining: impeding our personal and professional goals, disrupting flows of data, erecting barriers to participation and inclusion, disrupting innovation. As ethnographers, however, we also understand friction as a generative force. The diverse perspectives, unexpected partnerships, and conflicting goals that friction yields can open time and space to plot creative paths forward.

Our work in service of people and organizations will benefit from engaging with friction as a quality of social life that we grapple and design with, not only as a frustration or discomfort to avoid.

We invite you to consider Friction at multiple sites and scales:

As practitioners, researchers, designers, innovators, and creators, our work is fed by friction.

Ethnography inevitably surfaces differing interpretations, values, and viewpoints, and issues of positionality, bias, and reflexivity. From these we create the frameworks, design principles and strategies that enable our organizations to take action amid the complexity of life. Our insights and impacts are forged through friction—the partnerships, alignments, and dissonance among our teams, collaborators, stakeholders, organizations, communities and critics.

Friction is part of people's engagements with products, services and processes.

The focus on reducing friction has created key efficiencies and helped address struggles, priorities, and inequities from users' points of view, including people excluded from the definition of 'user'. But with our compulsion toward 'seamless' experiences, we also reduce social interactions to technical transactions, constrain human agency, perpetuate inequities, and privilege idealized happy paths at the expense of our diverse realities.

Innovation happens in the friction of global connection.

As businesses and organizations alternately and unevenly pursue profit, disruption, connectedness, inclusion, or climate-readiness, ethnography is crucial in navigating complex social realities that populate our horizons and so-called white spaces. Too many products and policies land, and fail, on poorly understood ground. Understanding the friction of the diverse interactions that make up our contemporary world is essential to organizational learning, decision making, strategy, and foresight.

Our keenest insight and most powerful impact come when we challenge entrenched practices and prevailing wisdom. Those moments both embrace friction and *are friction.* Join us in Chicago in 2023 to grapple with and harness friction for all its complex and productive powers.

CONTENTS

Constituting Community *10*

The Transformative Power of Friction: Inclusive Community Centered Visioning in Manhattan's Chinatown (Case Study)
Priyanka Jain, Megan Marini, Isabella Gady *11*

In Search of Cultural Entropy: A Call for New Frameworks of Analysis (PechaKucha)
Gunes Kocabag *27*

Navigating Adoption by Global South Users: The Case of Wikimedia Volunteers (Case Study)
Camille Kramer-Courbariaux, Sasha E.N.A Ofori, Kalama Hafisou *28*

In Pursuit of Authenticity: Commodified Community, Curated Experience, and Fandom (Paper)
Logan McLaughlin *47*

Intergenerational Living: Thai Cultural Frictions and Taboos in Changing Times (Case Study)
Adisorn Supawatanakul, Piyathep Tanmahasmut *66*

Anthro x Journo: The Value of Ethnography for Solving Journalism's Challenges (PechaKucha)
Emily Kennedy *80*

Positive Friction: Creating Movement and Progress *81*

Friction by Machine: How to Slow Down Reasoning with Computational Methods (Paper)
Anders Koed Madsen, Anders Kristian Munk, Johan Irving Søltoft *82*

Smartphones and The Future of Remembering: Frictions, Problems, and Pathways (Case Study)
Charlie Strong, Saeideh Bakhski *106*

Fluid Friction: The Case for Friction in Public Safety Design (Paper)
Joshua Burraway *120*

Favoring Friction: Examining Hotel Browsing and Buying Through the Lens of the Bazaar (Paper)
Simon Roberts, Erin Hackett, Sohit Karol, Diego Baron *136*

Towards a Framework for Constructive Friction Processes: What Childbirth Practices in the Global South Teach Us about Destructive and Constructive Friction (Paper)
Juliana Saldarriaga, Ana Inés Osorio, Angie Hernández, María Paula Toro *163*

Friction to the Future! *176*

Grounded Models: The Future of Sensemaking in a World of Generative AI (Paper)
Tom Hoy, Iman Munire Bilal, Zoe Liou *177*

Images and Imaginaries: Reflections on a New Paradigm of Ethnographic Images in Business (PechaKucha)
Enya Trenholm-Jensen *201*

Fluidity and Friction: An Experiment in Ethnographic Foresight (PechaKucha)
Erin Duncan *202*

Anticipation for Grand Challenges: An Ethnographic Study of Future-Making Practices in a Technology Company (Paper)
Irem Tekogul, Carlos Teixeira *203*

Frictions in the Future of Work (Paper)
Madison Van Oort *219*

Technology in High Stakes Moments and Complex Contexts *230*

Sending out an SOS: Signals from Conflict-Affected Audiences in the Digital Communication Landscape (Case Study)
Capri Burrell, Sara Parvanezadeh Esfahani *231*

Sangharsh: (nm) Struggle; Conflict, Friction: Creative Workarounds in Friction Arising from Patriarchy! (PechaKucha)
Vidya Ganesh *241*

How Friction Led to a More Intentional Stakeholder Feedback Model for a Federal Research Program (Case Study)
Briana Lang, Jennifer Shelley, Monica Myer, Victoria Palacios *242*

Observing Friction through Ethnography and Experience Prototyping in the Postpartum Period (Case Study)
Raelynn O'Leary, Ashley Deal, Tamar Krishnamirti *260*

Sustainability and Energy Transitions *276*

Local Frictions in the Energy Transition: Design Anthropology for the Emergence of Energy Communities (Paper)
Gijs Van Leeuwen, Abhigyan Singh *277*

Introducing Ethnographic Practice to a 100-Year-Old Corporation in a Highly Regulated Industry (Case Study) *295*
Djuana Stoakley, Aaliyah Shareef

The Uncommon Good: Making Room for Radical Transition Imaginaries (Paper)
Azra Sungu, Weslynne Ashton, Maura Shea, Laura Forlano *308*

Friction between Reticence and Narrative in Local and Global Interconnections along the Ethical Canadian Diamond Supply Chain (Paper)
Linda Armano *331*

Catalyzing Organizations *349*

Friction in Equity Work for Product Development: Getting Unstuck (Case Study)
Marina Kobayashi, Noelle Easterday, Reality Canty, Alexandre Zanoni *350*

A Tale of Two Frictions: Building Ethical Software Solutions by Challenging Tech's Obsession with Efficiency (Case Study)
Aziria D. Rodriguez Arce *357*

Friction into Traction: A Case Study of Friction in Strategic Ethnography (Case Study)
ken anderson, Maria Cury *367*

Breaking the Wall of Engineering and Culture: Applied Qualitative Research in Software Companies of LATAM Industrial Sector (Case Study)
Salvador Suniaga *390*

Mediated Bodies and Embodiment *405*

Toilet Talk: The Subtle Art of Awkward Research (PechaKucha)
Annie Lambla, Camille Ronceray *406*

Accessibility as Apparatus: How the Friction Filled Experience of Using Hearing Aids with a PC Led a Corporation to Design for Accessibility (Paper)
Emory James Edwards, Susan Faulkner, Richard Beckwith, Rebecca Chierichetti *407*

Smelling Fear: How Tattooing Inspired Me to Explain Sensation (PechaKucha)
Dustin Kiskaddon *428*

Let's Chat!: Prototyping, Productive Frictions, and Radically Restructuring Adolescent Sexual Health Counseling Interactions (Case Study)
Amanda Geppert, Emily Moss, Laura Paradis, Sierra Bushe-Ribero, Julia Rochlin, R. McKinley Sherrod, Crystal P. Tyler *429*

Dynamics of Power and Agency *449*

Friction as Sneaky Power (PechaKucha)
Ted McCarthy *450*

The Sound of Friction: How to Do Things with Listening (Paper)
Michael G. Powell *451*

Government Forms as Friction: Identifying Opportunities for Innovation at the Intersection of Staff and Resident Needs (Paper)
Nadine Levin, Matthew Glibbery, Nichole Lee, Liz Avalos, Darcy Bender *472*

A Personal Research Project that Turned into My Life's Work (PechaKucha)
Shipra Kayan *489*

Adding Friction to Mandatory Reporting: The Case for Survivor-Centered Research (Paper)
Sarah Fathallah, Anna Myers, Verónica Caridad Rabelo *490*

Friction as a Core Competency *516*

Toward an Ethnography of Friction and Ease in Complex Systems (Paper)
Benjamin Chesluk, Mike Youngblood *517*

The Ethnographer in the Machine: Everyday Experiences with AI-enabled Data Analysis (Paper)
Suzanne Walsh, Jara Pallas-Brink *538*

Researcher Positionality & Identity Validation: A Case Study in Organizational Friction over the Framing of a Demographic Questionnaire (Case Study)
Nia Holton-Raphael, Chelsea Mauldin, Meera Rothman *555*

Entangled: On the Social and Ethical Friction of Fieldwork (Paper)
Kate Sieck *570*

What You Find When You Find No One: Finding the Light out of Darkness (PechaKucha)
Laura Janisse, Frances DiMare Dailey *585*

Ethnographic Film *586*

Cash as a Good
Lese Awodiya *587*

The Motherload
Brian Flannery, Eve Ejsmont, Branden Mayer *588*

Showing and Telling: Visual Ethnography between Immersion and Persuasion
Todd Carmody, Rebekah Park *591*

Mosaic Atlas: Mapping Inclusive Arts Hubs
Jan English-Lueck, Kerry Rohrmeier, Patrick Padiernos *592*

Constituting Community

Products, services, and organizations are embedded in the social lives of communities. The presentations in this session show how communities are constituted and contested by frictions of belonging, authenticity, and the authority to speak for the beliefs and priorities of the group.

Discussant: Yuliya Grinberg, *Drew University*

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The Transformative Power of Friction:

Inclusive Community Centered Visioning in Manhattan's Chinatown

PRIYANKA JAIN
MEGAN MARINI
TROY SIMPSON
ISABELLA GADY

This case study discusses how friction plays a transformative role in reshaping relational dynamics within the context of community and public decision-making. We explore concepts of pluralism and emphasize the value of embracing conflict arising from a multiplicity of voices. Within the context of a visioning process concerning the redevelopment of a community center—70 Mulberry Street—in New York City's Manhattan Chinatown, we interrogate how friction mediated by ontological and community-centered design approaches can address power hegemonies in public discourse and exercise inherited memory and literacies to reconstruct local worlds. Keywords: community-centered design, pluriversal design, transformative paradigm, pluralism, public decision-making, community engagement, design research, Chinatown, co-design, power dynamics.

INTRODUCTION

> "My grandfather arrived in Chinatown in 1903. And for nearly 120 years since then, my family and I have been a part of this community. Throughout all this time, 70 Mulberry Street has been a cornerstone in the neighborhood, whether as a beloved public school, or community cultural hub, or an entry point for generations of immigrants and I, myself, have worked in Chinatown for over 40 years and participated in numerous programs there. We are the current guardians of a neighborhood legacy."
> —Manhattan Chinatown Community Member

The description above of 70 Mulberry Street—a 130-year-old historical and cultural landmark in New York City's (NYC) Manhattan Chinatown—reflects the central role 70 Mulberry Street occupies in the lives and memories of generations of Chinatown residents. From its origins as Public School (P.S.) 23 in the late 1800s to its transformation into a community center in the 1970s, the building has played a central role in the lives of Chinatown's residents with a history that is deeply woven into the community it serves (NYC Municipal Archives, 2020). In January 2020, a five-alarm fire destroyed a significant portion of the building which disrupted and displaced a range of organizations and activities centered at the site, and ultimately spurred the City of New York to launch a 90-day community visioning process to determine its future. An exploration of the complex position 70 Mulberry Street occupies in the material landscape and in a range of cultural systems of meaning, as well as the degree to which those networks could be destabilized through its

destruction or re-definition, help illustrate the importance of engaging a community-led visioning process to produce outcomes that reflect community priorities, cultural identity, and heritage.

70 MULBERRY STREET

The history of 70 Mulberry Street closely mirrors the evolution of Manhattan's Chinatown. With the oldest record in the municipal archives pertaining to a construction application permit with the Department of Building in 1891, the building was initially designed and operated as a 31-classroom elementary school with a capacity for approximately 1,700 students. It was first designated as Public School No. 23 and later The Columbus School by the New York City Board of Education (NYC Municipal Archives, 2020). The school opening coincided with a significant transformation in the surrounding neighborhood due to an influx of people of Chinese origin in the 1870s, which was driven in part by direct immigration to work in New York City's port as well as by eastward migration from the American West in response to anti-Asian discrimination (Lin, 2010).

Many participants in the community visioning process offered histories of how their families sought refuge in Manhattan's Chinatown in response to anti-Chinese violence in the western United States. In 1880, the name "China Town" was first used by the New York Times to refer to the neighborhood formed between Mott, Pell, and Doyers streets (NYC Municipal Archives, 2020). The unveiling of the Calvert Vaux-designed Columbus Park and the growth of the Chinese community, from between 700 and 1,100 residents in the 1890s to more than 20,000 by 1960, marked this period of change.

The demographic shift described above was driven by a range of factors including immigration reforms such as the Magnusson Act (1943) which repealed the Chinese Exclusion Act (1882), and the Immigration and Nationality Act (1965). Chinese immigration in the latter portion of the 20th century caused a shift in the demographics of the community and the student body at P.S. 23 (Kwong, 1996). During this time, Manhattan's Chinatown saw a substantial influx of immigration not only from China, but also Southeast Asia, Korea, the Philippines, and other Asian countries to the United States.

During the visioning process, many participants described 70 Mulberry Street as a sanctuary for newly relocated Chinatown residents and a vital aspect of the Asian American and Chinese American migrant experience in New York City. Community members often described the building as a physical artifact of often otherwise intangible individual, familial, and communal histories of immigration:

> "It remains as a physical reminder of the collective history and generations of residents who attended that school, and have fond memories of that school and received an education that impacted the rest of their lives."
> —Community Member, Community Engagement Workshop

> "When my family escaped the violence out west in the nineteenth century, they found refuge in New York's Chinatown. And the first generation of Americans and my family were educated at 70 Mulberry. These were my grandparents, my parents, my aunts, my uncles… This building is historic, and it means a lot to my family. But it's also part of the cultural fabric of Chinatown. And I would hate to see it become torn down like the old Penn Station."
> —Community Member, Community Engagement Workshop

In the mid-1970s, 70 Mulberry Street underwent a transformative shift from a school to a community center that served Chinatown. When the last class of P.S. 23 graduated in 1976, the building was repurposed as an all-age community center. The building was then occupied by community activists tied to the emergence of the cultural heritage movement in Chinatown.[2] Chinatown stakeholders were able to secure public support to house a range of cultural and social service organizations offering services for community use in the building eventually leading to 70 Mulberry's current tenants. As described in Jan Lin's (2010) The Power of Urban Ethnic Places, 70 Mulberry Street evolved over the following decades into a home for community-based organizations as the building was recognized as a "focal point for outreach and former community residents with memories of attending the school" (p. 212). As of 2020, the building was owned by New York City Department of Citywide Administrative Services and hosted five organizations, including the Museum of Chinese in America (MOCA), the Chinatown Manpower Project, the Chinese-American Planning Council, H.T. Chen & Dancers, and the United East Athletics Association which offer a range of program offerings. The building covered a gross area 41,358 square feet across five and half floors with a total of seven units. It housed the archives of MOCA and the Chinatown Senior Center, operated by the Chinese-American Planning Council.

However, despite Chinatown's prominence as a burgeoning ethnocultural enclave from the 1970s to the early 2000s, several factors led to economic and population decline in the area. Post-9/11 security measures, including the closure of Park Row to civilian traffic, disrupted major tourist routes and negatively impacted local businesses. The decline of the garment industry, once a major source of employment in Chinatown, also led to job losses and economic uncertainty for many residents. These economic challenges, combined with rising living costs in New York City as a whole, contributed to the decline in the Asian American and Chinese American populations within Chinatown. Census data from 2000 to 2020 reveals a 30% decrease in the Chinese population, despite satellite Asian and Chinese communities in surrounding NYC areas like Sunset Park, Bensonhurst, and Flushing witnessing significant growth. This demographic shift expanded Chinatown's current population beyond first-generation working-class immigrant to encompass more second- and third-generation Chinese Americans and individuals from other Asian ethnicities (Kwong 1996).

Amid these demographic changes, 70 Mulberry Street continued to hold historical and architectural significance. The building occupies a prominent location within the historic core of Chinatown, which was jointly designated as a historic district with Little Italy on the National Register of Historic Places in 2010. The building's architect, Charles B.J. Snyder, also designed New York City landmarks including Erasmus Hall High School and Morris High School. While 70 Mulberry is not officially designated as a New York City landmark, it is listed as a contributing building to the Chinatown National Register Historic District (National Parks Service, 2010).

Beyond its architectural and historical value, 70 Mulberry Street served as a symbol of intangible heritage and cultural traditions that had been preserved with the aging population of Chinatown. Several benefits, tangible and intangible, of the building were mentioned during the community engagement meetings, spanning from the building's rich immigrant history, long-standing historical connection, architectural legacy and difficult to replicate details such as the rusticated brownstone ashlar base, the corner tower, and brick facade.

> "[My mother] is a member of the Chinatown Senior Center, which has been there for about 40 years and used to take up the entire ground floor. She wants to remind everybody that it was a very important gathering place for about 300 seniors. Each and every day, five days a week, it was a gathering place for lunch. On top of that, the other uses were musical performances. There were dance classes, Tai Chi classes, drawing classes, computer classes and English classes. So there were a lot of uses in there that we would like to see restored." —Community Member, Community Engagement Workshop

> "I think it is vital that the arts, particularly the performing arts, [the organizations could] still have a home at 70 Mulberry. Organizations like Chen Dance Center provide dance training and performance opportunities to thousands of Chinatown residents and NYC public school students and draw in people not just from the Chinatown community but all over NYC." —Community Member, Community Engagement Workshop

> "It is a place for immigrants coming to the community and a place where they can build friendship, sense of community, interest and appreciation for arts and culture." —Community Member, Community Engagement Workshop

In January 2020, a five-alarm fire severely damaged the top floors of the building, including destroying its brick walls and corner tower. In response, the New York City Department of Buildings (NYC DOB) issued a vacate order and required the New York City Department of Citywide Administrative Services (NYC DCAS), the building's owner, to demolish a portion of the structure. Concurrently, the five community-based tenant organizations relocated and began offering some of their services in reduced capacity at interim locations (New York City DCAS, 2020).

> "70 Mulberry Street is very important to the heart of culture in Chinatown. It was devastating when it burned. Please keep the spirit of that building alive and make it stronger."—Community Member, Community Engagement Workshop

> "Its [legacy] is the physical aspect of the building, the beautiful brownstone, arches to the entrance, the pattern of the windows, the beautiful color of the brick corner tower that towers over Columbus Park and was this community's version of a new Italian Campanella. It is the quality of the masonry. It is the physical presence in the heart of Chinatown. It is the long connection to the community, and is the crucial services provided by the tenants in that building for tenants who deserve to be back PS 23 building and classroom in that building, with a better, more purpose-built facility than they have ever had before."

> "Tenants need to re-establish their homes at 70 Mulberry as quickly as possible. However, with that said, there does not need to be a choice between expediency of rebuilding and preservation of our community's history. Both can happen with a sensitive architectural design of this space. This needs to be addressed and not pushed to the side."—Community Member, Community Engagement Workshop

Fearing the complete demolition of the building, Chinatown community members organized a protest and demanded a community visioning process. This protest emerged in the context of other tensions including, among others, historical divestment in Chinatown, compounded by the aftermath of the 9/11 tragedy; challenges posed by the pandemic, exacerbated by an upsurge in acts of harassment and violence against people of Asian descent; and ongoing community protests against the proposed borough-based jail program in Chinatown (Amandalore et al. 2020). In July, 2020, in response to community demands, the City of New York committed $80 million to redevelop 70 Mulberry Street, signaling a commitment to supporting its continued role as a community resource for future generations. This commitment marked a significant departure from the historical narrative of disinvestment in the area.

In response to community expectations for an inclusive and transparent community visioning process, the City engaged 3x3, a community-centered design agency, to co-lead and facilitate a shared vision for 70 Mulberry Street. NYC's Department of Citywide Administrative Services also formed an advisory committee consisting of building tenants and representatives appointed by elected and community officials.

TENSION IN PUBLIC ENGAGEMENT CONTEXTS

The individual and communal impacts that emerged from the fire at 70 Mulberry Street can be viewed through the lens of Mindy Fulilove's (2016) *root shock*, which encapsulates the short- and long-term impacts to individuals and communities associated with the "traumatic stress reaction to the destruction of all or part of one's

emotional ecosystem" (p. 11). With examples such as the razing of Ebbets Field in Brooklyn, and the widespread urban renewal processes of the 20th century that displaced entire communities, Fulilove argues such disruptions can have lifelong effects beyond the immediate traumatic instances of loss in the form of disrupted and disbanded emotional and cultural systems. The fire at 70 Mulberry Street sparked a shock wave of disruption to a web of relationships and shared meanings woven together through the existing and constantly transforming processes and relationships associated with the site. As such, the community-led visioning process associated with 70 Mulberry provided an urgent opportunity to provide space for members linked to those ecosystems to attempt to simultaneously limit further disruption and conversely participate in the process of place-making that would support an outcome aligned with their collective needs and perspectives.

The mere existence of a community engagement process, however, does not necessitate meaningful or distributed participation and engagement in decision making among participants. Often when the means of design or decision-making are constrained to technocratic processes driven by so-called *expert* knowledge, friction – or the potential for friction – presents a risk to be managed and controlled under the guise of rationality or morality. Often to the effect of manipulation and trust deficits. According to Chantal Mouffe's (1999) critique of deliberative democracy, "every consensus exists as a temporary result of a provisional hegemony, as a stabilization of power that always entails some form of exclusion" (p. 756). Instead, Mouffe emphasizes the need for an *agonistic* democratic approach that grapples with the complexity of power emerging from the network of differences within pluralist societies (Mouffe 1999). Sherry Arnstein's (1969) *ladder of citizen participation* framework offers a valuable tool for classifying and addressing the nature of participant agency and power in decision making processes, ranging from nonparticipation to meaningful citizen power. Arnstein developed the tool in response to her experiences working at the U.S. Department of Housing and Urban Development from 1967 to 1968 as the chief advisor on citizen participation in the Model Cities Program, a vehicle for urban renewal, where manipulative engagement tactics were employed in order to maintain status quo power hegemonies. The framework calls for engagement processes that avoid forms of nonparticipation and tokenism and strive towards "citizen" co-production.[3]

Participants in such processes bring to the experiences a range of individual, organizational, and cultural identities and perspectives, many of which may come into conflict through a period of renegotiation and redefinition given the destabilization spurred by the fire at 70 Mulberry Street. In our experiences, these differences in subjectivities manifest in the form of highly divergent expressions of desired outcomes. The preliminary consultation conducted by 3x3 with the advisory committee, together with the analysis of reported community protests and the review of letters received from local residents, revealed a diverse set of often conflicting priorities and perspectives regarding the future of 70 Mulberry Street, such as

preserving or demolishing the remaining building structure and architectural elements; employing adaptive reuse strategies or prioritizing new interior space planning; retaining existing building height and floor areas or making expansions; and retaining or extending programming. The emergence of these divergent perspectives and agendas serves as an indication of the manner in which power, friction, and complexity manifests in participatory urban development processes.

It is also important to acknowledge the tension that is inherent in visioning processes. As Peter M. Senge (1990) points out in 'The Fifth Discipline', creative tension emerges when there is a gap between a vision and a reality citing an example of a rubber band stretched between two poles, one pole representing a larger vision and the other representing the current reality. Resolution or release occurs when one pole moves towards the other. Such tension often leads to feelings of anxiety, discouragement, or even hopelessness, or emotional tension. This creative tension manifested in the case of 70 Mulberry Street most evidently where community members expressed concerns about feasibility within the context of an unfolding COVID-19 pandemic.

> "Is $80 million guaranteed? Where can we see it?"
> —Community Member, Community Engagement Workshop

> "We do not know where that number [$80 million] is coming from…"
> —Community Member, Community Engagement Workshop

Recognizing the inherent potential for friction between diverging perspectives in the context of visioning in response to a crisis, 3x3 embraces an ontological and community-centered design approach, which is aligned with the core principles of the *transformative paradigm* and *pluraversalism*. We draw from Anne-Marie Willis' (2006) notion that when we design our world, our world designs us back, which is to say that "design designs". When communities have the right to self- and collective-determination to design their own pathways, not only are participants transformed, but new nonexploitative ways of being are created out of the dreams, desires, and friction held between a multiplicity of stakeholders. In the words of anthropologist Arturo Escobar (2017), in "…the transition from the hegemony of modernity's one-world ontology to a pluriverse of socionatural configurations; in this context, *designs for the pluriverse* becomes a tool for reimagining and reconstructing local worlds" (p. 4).

ONTOLOGICAL AND COMMUNITY-CENTERED DESIGN

Inspired by philosopher and social critic Ivan Illich (1973), we drew upon our foundation of co-design and ethnographic-inspired tools with an intention to support co-production that acknowledges "both memory and the inheritance from

the past as creation," (p. 7) supporting community rights to open political processes, tradition, myth, and ritual in order to foster a diversity of ontologies.

3x3's approach centers a multiplicity of historically excluded perspectives and lived experiences in decision-making to not only co-create more effective, contextualized strategies but to generate positive spillover effects that can lead to more just systems over time. Such spillover effects rely on reframing relationships with reciprocity to establish transformative trust – trust that takes a dynamic energy and force of its own – towards an infinite game.

Connected to concepts such as relational design and relationship ethics, community-centered design sits within a broader transformative paradigm a framework that addresses dynamics of power, privilege, and inequity in mixed-methods research. The transformative paradigm is part of a lineage of justice-focused research and design schemas, such as liberatory design, equity-centered community design, participatory design, and critical emancipatory research.

Community-centered design is one application of a transformative paradigm that values communities as experts and agents of their own lives. A core tenet of this approach relies on engaging audiences as key stakeholders to co-create shared visions for community investments and build shared ownership over their success. It is based on principles of transparency, accountability, reciprocity, restoration, and equity. The following subsections describe notable concepts and strategies underneath our broader principles.

INVERSE POWER MAPPING

Drawing upon a conceptual foundation rooted in network theory, *power mapping* refers to the analytical process of identifying and analyzing the distribution and dynamics of power within a given context (Barabási and Pósfai 2016). Conventional power mapping frameworks are predominantly used by social designers in social change campaigns to identify influential or powerful individuals and groups with the goal of strategically engaging them to advance project goals. The resulting maps serve as a form of social network analysis that illustrates the sphere of influence of a given person or group. The role of relationships and networks assists in identifying the relevant *nodes of power* that "should" be engaged in the process in order to advance desired outcomes. Another version of power mapping involves mapping stakeholders along the axes of influence and interest. Similar to the previous tool, it is primarily used to identify sources of power and formulate strategies for influencing influential individuals.

Rather than approach the power map with an aim of influence or even manipulation, an inclusive approach can identify and build upon power held among historically excluded individuals and groups. In our experience, the inclusive approach facilitates transparency and shared understandings of community networks and, in doing so, encourages participants to identify strategies for strengthening

networks. Not only is it helpful to build a shared understanding among participants of the power dynamics in relation to an issue or context, it can also be helpful as a tool for de-homogeonizing stakeholder groups for the purposes of equitable representation in a process.

Within the context of the 70 Mulberry Street community visioning process, 3x3 collaborated with the Advisory Committee to develop a visual map of stakeholders considering those who: (a) may have experienced significant impacts from the fire, (b) belong to historically marginalized groups, or (c) face substantial barriers to engaging with the community visioning process. It should be noted here that this tool is useful to ensure the *intentional inclusion* of stakeholders, particularly those historically excluded from public deliberation processes who often face barriers to participating due to information silos or other accessibility factors such as language and time poverty. This tool helped determine accessibility accommodations for the public process to enable more equitable representation that can start to address historical power disparities.

Acknowledging that stakeholder maps rest on many assumptions, particularly depending on the biases of who is "in the room", we continued to vet the map with a broader set of stakeholders engaged with different Chinatown communities to evolve the map and continue identifying accessibility accommodations necessary for the engagement process. We also factored in inputs from the community letters to develop strategies for more equitably creating a shared vision and build trust with community members.

Intersectionality and Representation

Intersectionality is an analytical framework coined by Kimberlé Crenshaw (1989) for understanding how aspects of one's social and political identities combine to create different modes of discrimination, privilege, and oppression. Rooted in research and activism of women of color, intersectionality can be traced back to Sojourner Truth's 1851 speech "Ain't I a Woman' and connects to ideas about *positionality* that emerged during Progressive movements of the '60s when social scientists questioned whether objectively observing a phenomenon without being influenced by your own background was possible. First coined by Linda Alcoff (1988), it understands one's position not as innate or inherent but rather as created by social and political forces that are constantly changing.

Many planning scholars have drawn from social justice scholarship to argue for an emancipatory planning paradigm, one that challenges hegemony and seeks equitable and meaningful representation for participants in planning process (Connolly and Steil, 2009; Friedmann, 2003; Miraftab, 2009; Peattie, 1994; Sandercock, 1998s, 1998b). Intersectionality and representation provide useful frameworks for engagement designers to: (1) interrogate their ability to interpret and steward knowledge about the experiences, perceptions, opinions, and desires of those they seek to engage; (2) surface and address power dynamics within a given

context; and finally, (3) ensure equitable representation of the plurality of voices, perspectives, and experiences to ensure that engagement does not lead to the substitution of one prevailing group of voices with another. While equitable representation is a core principle of a community-centered approach, it is important to acknowledge that no single individual possesses the ability to fully embody or serve as a representative for a whole community. As Crenshaw (1991) argues, "The problem with identity politics is not that it fails to transcend difference… but rather the opposite – that it frequently conflates or ignores intragroup differences (p. 1242).

3x3 applies the outputs from power mapping and related exercises focused on positionality and reflexivity to systematically and intentionally design strategies for more inclusive outreach and engagement, including ensuring appropriate cultural competencies are in place. Collaborative data collection and analysis associated with the power mapping exercises provides the opportunity for participants to interrogate not only the mechanisms and positions of power in a given context, but also the complex and multifaceted aspects of individual and group positionalities that help inform ways to make the engagement more accessible and therefore more inclusive.

In the 70 Mulberry context, 3x3 employed multilingual engagement designers proficient in English, Mandarin, and Cantonese, owing to their Chinese and American backgrounds. As a result of their positionalities, the engagement designers were capable of navigating nuanced cultural and linguistic contexts throughout the engagement process. This approach promoted an orientation toward cultural understanding and recognition of intersectionality, which supported more open and flexible interactions and resulted in deeper and more meaningful insights.

Additionally, we learned that older individuals associated with the visioning process often encountered a convergence of obstacles that could limit their participation in the process, such as limited English proficiency, limited digital access and literacy, and greater needs for social distancing due to the COVID-19 pandemic. Recognizing these challenges, our team worked with community partners to reduce barriers to participation such as by posting flyers via the senior center bulletin board and engaging community partners to providing assistance in participating in digital engagement sessions.

Trust and Accountability

Trust and accountability are fundamental aspects of various domains, including interpersonal relationships, organizational dynamics, and societal structures. Trust refers to the reliance and confidence individuals place in others. The inclusion of varied perspectives, even if they are contradictory, necessitates the design of a facilitation mechanism that incentivizes disagreements rather than trying to foster consensus (Miraftab and Wills 2005).

Convergent thinking, with its greater emphasis on commonalities over differences, facilitates alignment on shared values, identification of areas of

agreement, and establishment of communication bridges across stakeholders with otherwise diverse perspectives and belief systems. In contrast, carefully navigated explorations of divergent thinking, can promote the acceptance of many ideas by recognizing the value of varied mental processes. Within the framework of agonistic pluralism, the practice of divergent thinking can foster an inclination among individuals to examine a wide range of viewpoints in an impartial and non-judgmental manner. This approach cultivates a sense of curiosity and a readiness to actively embrace the new or unexpected.

The presence of opposing priorities can provide a fertile ground for insights and ideas (Farjoun and Fiss, 2021). However, the question arises as to how an engagement designer may establish a framework in which different various stakeholders can engage in both collaboration and compete for their interests simultaneously, while maintaining a level of constructive behavior that prevents the breakdown of the situational coalition.

3x3 strives to create spaces within our engagement processes that facilitate convergent-divergent thinking. with explicit acknowledgment of the nature and validity of varying viewpoints concurrently held by different stakeholders. Engagement Designers are faced with managing participant expectations regarding the emergence of such differences and alignment with the intent of engaging participants productively with a diverse range of potential pathways. Exercises associated with this approach include value storytelling which does not only help you see how divergent perspectives can be but also facilitates understanding. The value storytelling can also help facilitate the dissemination of rich personal and intergenerational memories and experiences. This practice grants stakeholders valuable perspectives into diverse worldviews empathy and fostered comprehension, thereby unveiling shared principles and similarities among everyone involved, irrespective of their distinct perspectives.

The process encountered numerous problems in establishing trust. The problems were addressed by our team through the implementation of measures aimed at promoting transparency and authenticity throughout the process. Two feedback loops were established in our project. The first feedback loop was implemented following the ideation phase, while the second feedback loop was implemented for the design phase. The team showed a strong dedication to maintaining transparency in both information sharing and decision-making throughout the entirety of the project. The facilitators fostered an environment conducive to iterative processes and experimentation. They operated under the assumption that the answer would emerge via the combined knowledge of the stakeholders, without prioritizing one perspective over another.

In order to further build trust with community members, our team collaborated with the advisory committee members, community-based groups, and community leaders to effectively engage community members using their preferred modes of communication. The employed strategies included the distribution of flyers directly

to business and property owners using door-to-door visits, as well as the use of established WeChat groups to disseminate information ro service recipients and residents. The community groups and members of the advisory committee assumed the role of proxy engagement designers during the distribution of surveys. They used familiar modes of interaction to create open lines of communication. This approach prioritized the internal dynamics and perspectives of the community, rather than imposing external viewpoints. This strategy also aimed to reduce the risk of outsider's perspective dominating the process.

Creating an enabling environment was also crucial to fostering open-mindedness, ambiguity tolerance, and the recognition of diverse viewpoints. Our team created various avenues for stakeholders to share and deliberate on the issues and opportunities related to the reconstruction of 70 Mulberry Street. A virtual town hall style was implemented to facilitate the participation of all stakeholders, enabling them to articulate their issues and pose questions within a unified platform. Listening and design sessions were carried out with smaller groups in order to build and prioritize a shared vision and identify potential opportunities. Our team successfully involved a range of 100-150 individuals in each of these formats. Furthermore, individuals were incentivized to engage in a survey, resulting in the acquisition of 551 replies, as well as the sharing of letters and documents.

CONCLUSION

The exploration of this case study has revealed how friction, mediated by ontological and community-centered design approaches, can address power hegemonies in community and public decision-making. The study underscores the importance of embracing pluralism and recognizing the value inherent in the conflicts that arise from a multitude of voices.

The study shows how friction, when harnessed through inclusive, community-centred design, can lead to transformation outcomes in public decision-making It demonstrates the potential for diverse perspectives to co-exist, intersect, and converge, resulting in a shared vision that reflects the richness of a community's heritage and the aspirations of its community members. This case study offers valuable insights and a potential model for community-driven initiatives that seek to navigate complex power dynamics and honor cultural legacies while envisioning a more inclusive future.

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NOTES

1. While using the terms like "Asian American" and "Chinese American," it is important to acknowledge that not every individual categorized under these terms may necessarily identify as American, underscoring the multifaceted nature of personal identities and lived experiences. It is also important to note that designations "Asian American" encompass people who trace their roots to more than 20 countries in East and Southeast Asia and the Indian subcontinent, each representing a rich mosaic of cultural diversity (Pew Research Center n.n.). Within this broad spectrum, more than 59 different languages other than English are spoken, illustrating the linguistic diversity within these communities (U.S. Census Bureau 2022).

2. Jan Lin's Power of Urban Ethnic Places briefly describes how some of the significant shift in the building came about. As Lin describes, "The New York Chinatown History Project was started in 1980 by Charlie Lai and John Kuo Wei Tchen…As the story goes, the two turned their cultural activism to the streets when they began to notice the treasure trove of community artifacts that were being left on Chinatown sidewalks by older households and commercial merchants making way for new immigrants…When they moved into P.S. 23 in 1984, their first exhibition chronicled the quiet but heroic struggles of the Chinese American laundry worker…When the NYCHP became the Museum of the Chinese in the Americas(MoCA), it decided to stay in P.S. 23 because according to Fay Chew, it recognized the school building as an artifact itself, meriting historical preservation…A series of alumni reunions of former students of P.S. 23 exhibition provided an opportunity for reunion in the spirit of intercultural remembrance and dialogue while also forming a collection of artifacts and stories that would subsequently form the exhibition "What Did You Learn in School Today? P.S. 23, 1893-1976." Lin also mentions the shift of MoCA into a new 14,000-square-feet space at 211-215 Center Street and the continuation of the old space at P.S. 23 as an archival and research center. Our team was not able to find documentation on how other community groups came to occupy P.S. 23 and eventually became the tenants of 70 Mulberry Street.

3. In Sherry Arnstein's "Ladder of Citizen Participation," the term "citizen" is used to refer to individuals who are part of a community or society, and it represents a broad and inclusive concept of participation in a democratic society. In Arnstein's framework, the term "citizen" does not necessarily imply formal citizenship in a legal sense (e.g., being a citizen of a specific country with associated rights and responsibilities), but rather it encompasses all community members who have a stake in the decision-making processes and outcomes that affect their lives.

The COVID-19 pandemic had a significant impact on the way Chinatown communities engaged with the community visioning process. Due to the need for social distancing and health precautions, many traditional in-person methods of community engagement became limited.

Ethical considerations are paramount in community engagement projects. To keep the text short and focused on the main argument, we did not discuss ethical issues such as informed consent, privacy, and conflicts of interest. These considerations should guide the entire community engagement process, ensuring that it aligns with ethical principles and respects the rights and privacy of community members.

It's essential to recognize that the insights and strategies presented in this case study may not be universally applicable. Different community visioning projects in diverse contexts may require different approaches. While our findings offer valuable lessons, their applicability should be assessed within specific contexts.

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In Search of Cultural Entropy

A Call for New Frameworks of Analysis

GUNES KOCABAG, Independent Consultant

In this PechaKucha, I explore the tension between an increasingly interconnected global culture and our premise as ethnographers to focus on the culturally specific and make sense of the uniqueness of "local" cultures. I pose the questions what does "local" mean in our contemporary world where experiences, lifestyles, influences, aspirations are all seemingly converging towards a global norm. Through historical perspectives and some inspiration from the science of physics, I demonstrate that plural diversities are only visible based on the frames we use to observe them. The rise of a global culture is challenging our existing frameworks of analysis and there is tremendous opportunity in this unavoidable friction for us ethnographers to help society and business rethink how we make sense of our world.

Photo by Marin Tulard on Unsplash

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Navigating Adoption by Global South Users: The Case of Wikimedia Volunteers

Why It Is Important for Global Organizations to Accommodate Inclusive Research Teams

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This case study explores the impact YUX, a pan-African UX research and design agency, had on the Wikimedia Foundation's (WMF) work with volunteer communities in Africa. After an overview of WMF's motivation for focusing on the Global South and a description of the teams and the research methodology, it focuses on the insights that changed how WMF supports its organizer community, and how differences in positionality sparked debate. Key insights include developing non-digital solutions, acknowledging that African participants leverage their volunteer work for personal growth, and addressing the uneven perception of Wikipedia as a neutral source of information.

Constructive debate arose because the WMF team had little knowledge of Africa, which obliged the African researchers to be comparative-cultural experts and ethical champions. Although the emic perspective had been sought after, ultimately the more complex solutions the research recommended, such as enabling organizers to collect phone numbers, were not prioritized. Other recommendations were followed through on and the research led WMF to launch a community-support group dedicated to African Wikipedia volunteers, and contributed to leveling up how WMF supports its volunteer community globally.

Keywords: inclusion, diversity, representativity, UX research, Africa, community building, human-centered design, positionality, methodology, case study

STARTING POSITIONS: BACKGROUND AND MOTIVATION

The Strategic Importance of Global South Wikimedia Volunteers

In July 2021, YUX – a pan-African research and design agency – was contacted by WMF to carry out a vast exploratory research project across four African countries. The topic of exploration was "volunteering," and more specifically, uncovering the best practices of successful African volunteer communities. What were volunteers' motivations and greatest challenges? What would it take to encourage more people to volunteer to organize events for the Foundation? For context, WMF relies on volunteers, sometimes referred to as "Wikimedians," to organize events called "edit-a-thons," where people gather to edit Wikipedia articles on a predetermined topic together.[1]

These edit-a-thons are a great entry point into the Wikimedia community of editors, since they provide training on how to use the Wikipedia platform, as well as a sense of community and group motivation. A lot of articles are started, written and improved during these events, and Wikimedia event organizers are crucial to the encyclopedia's continued growth and improvement. Building an intentional approach to engaging African and Global South volunteers is at the heart of WMF's current strategy, because the Foundation is aiming for greater representation in its wikis by 2030. They want to encourage the editing of articles about the Global South, ideally by people *from* the Global South.

The main challenge WMF faced was that the support they were giving was not as effective in Africa and other Global South geographies as it had been traditionally with European and Western Wikimedians. Because the needs of those volunteers (a typical Wikipedia editor is most often a retired Westerner) were already well documented internally, the research project aimed at exploring how to better adapt the support to African volunteers by learning what was being done locally in existing communities.

The Strategic Importance of a Global Project For YUX

This project was the first of its scope for YUX. At the time the agency was just five years old. Most of the staff was young and African, many were self-taught or had been trained at YUX, and the ratio of juniors to seniors was quite high. Though they had already worked on projects for international organizations and prestigious companies, it had always been on products or services intended for the African continent. This project would be the first global service the team would work on, and as such, it was an endorsement of the quality of what they had achieved. It would have been an exciting challenge for any researcher, but for the YUX team members it meant even more.

Because Wikipedia is a household name, they could tell their family members, and especially their parents, about it. African parents hold high expectations for their children and can have a significant influence on their career decisions, often pointing them in the direction of more traditional prestigious careers, such as medicine, engineering, law, etc. Even if our staff members were trained in sociology or anthropology, joining a "design" agency is a risky move, with many parents doubting their children's decision. It is important for "YUXies" to "prove" that they made the right choice. Parents have that influence in Africa, even on their adult or young-adult children, and as an agency, YUX has to acknowledge this.

The WMF project was also highly motivating for another reason. The ultimate goal of the project, to encourage more African content written by Africans, spoke directly to the agency's values. YUX is a pan-African agency committed to using research and design to build the future of the continent and to promoting African design and ownership of content and services. The WMF project was precisely the type of project the agency was founded for.

The Wikimedia Team's Starting Context

Right from the first meetings, the WMF team was extremely easy to work with and eager to listen. WMF works regularly with their communities and submits projects for their use and evaluation. The needs and challenges in community-building and in using WMF platforms were also well documented internally, but WMF recognized that they did not know the African continent well. Some strong wiki communities, such as those in Ghana and Nigeria, were better known to them, but most of the continent was riddled with behaviors, outputs, requests and challenges they were unfamiliar with and had a hard time building a strategy for.

A study had recently been completed on the existing volunteer-community organizers. It led the Wikimedia Campaigns team to the realization that they didn't know how other organizations were doing things, particularly in the geographies and languages where their own volunteers were struggling. The design research manager at the time, Ana Chang, pushed for additional research, and because the foundation's research team was not sufficiently staffed, she pushed for a local partner.

On WMF's side at the time, there was the senior product manager (the developers and the team designer were in the process of being hired), the design-research manager, a program director, an open-knowledge strategist and the director of community programs. The differences with the YUX team were numerous: age, education, seniority and culture. The WMF staff had attended college, mostly in the US, and although they knew about Global South challenges through their work at the Foundation, their lived experiences did not tend to reflect African realities.

The Black Lives Matter movement had had a strong impact on the Foundation, however, and they chose to seek a partner that would challenge their assumptions. A new DEI framework was being developed and implemented, and the partnership was not only intentional, it was respected. In what felt serendipitous, a big change was happening at WMF at the time: Maryana Iskander was starting as the new CEO. She had worked for 10 years at a South African NGO that relied partly on volunteers. Her knowledge of the continent and her non-technical background signaled a change in strategy. The research was coming at the right time, when a wind of change was blowing, and there were ears ready to listen.

THE RESEARCH APPROACH

The project had four major phases, with the goal of achieving a comprehensive, on-the-ground, in-situ understanding of community dynamics:

1. Desk Research
2. Exploration
3. Definition and Ideation
4. Prototyping & Testing

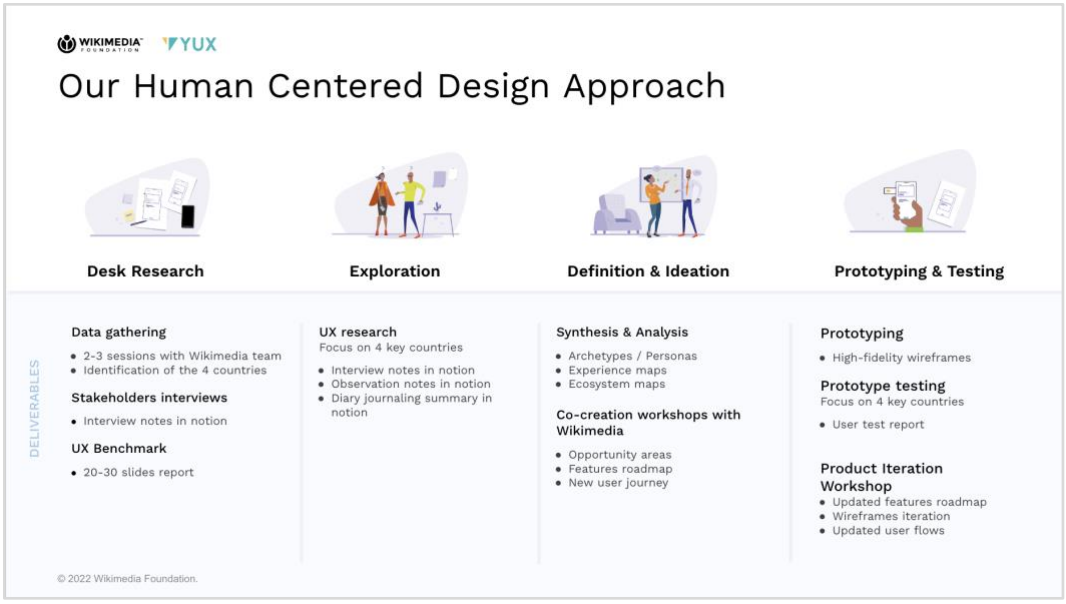

Figure 1: Summary of the project methodology's four steps.

Desk Research

After the project kickoff, there was a steep learning curve for the agency team to understand the complex world of WMF, and six stakeholder interviews were carried out with people working for the Foundation. Rather than being involved with the technical aspect of the project, most of them were involved with event and campaign organizers, who were in touch with the volunteer groups and were advocating for a shift in approach. Except for one person based in South America, they all lived in the USA, had been at the foundation for several years and were committed to the values of open-source, open knowledge and open access.

After the interviews, which yielded a lot of insight on what the WMF team expected, already knew and how they wished to leverage the learnings, the next step of the project was to profile the research communities. WMF had not determined exactly which countries they wanted to do research in, so the YUX team built a set of criteria based on the stakeholder interviews. The criteria included practical aspects, such as whether or not there was an active Wikimedia community in the country,

and if the YUX team had a presence there. Others were more qualitative: how much did WMF already know about the country? Preference was given to countries they had little knowledge about. Finally, languages spoken, geographical distribution and political contexts were also taken into account. The goal was a balance between French-speaking and English-speaking countries, country sizes and cultural and political dynamics.

The selection process yielded two English-speaking countries: Uganda and Rwanda, and two French-speaking ones: Senegal and the Democratic Republic of Congo (DRC). Uganda and Rwanda, two East African countries, stood out for different reasons. Rwanda has a very centralized form of government, and Uganda had intense political activism at the time. WMF wanted to explore the effects of those political contexts on activism and volunteering. In the DRC, the project team was curious to explore how country size affects community organizing. Finally, Senegal is a French-speaking West African country, and YUX has its headquarters there, which simplified the research effort. Priority was given to diversity, in order to explore how different contexts impact volunteer-event organizing.

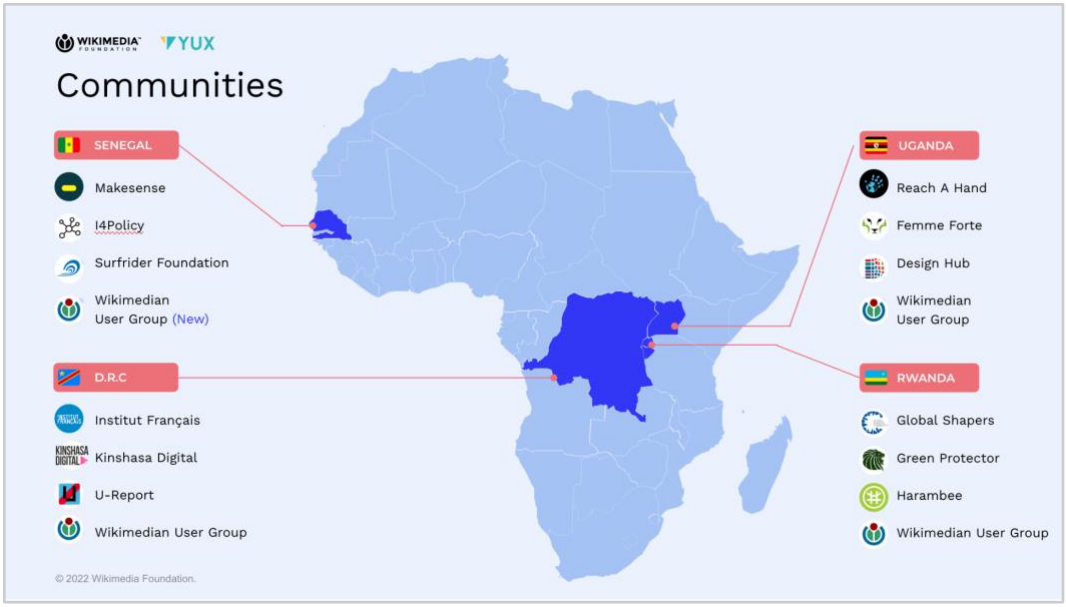

Figure 2: A map of Africa showing the four countries of research.

After identifying the countries, the specific communities had to be identified. There were three criteria for selection.[2]

1. They are good at community organizing (size of the community, quality of communication & events, impact)

2. They are activist (they aim for some form of social impact)

3. Participating may be risky for members (political opposition, personal beliefs, sexual identity or other community identifiers put the participants at some form of risk)

Exploration

The research was organized by country and type of community, with a combination of qualitative research techniques. For all non-Wikimedia communities we conducted two semi-guided interviews (organizers and participants), one immersion at an event and a diary study of the process of organizing an event from the perspective of an organizer. In each Wikimedia community we also conducted two semi-guided interviews and one immersion at an event, but we did not run a diary study, because the focus was on learning from other communities. In total, that added up to forty-four in-depth semi-guided interviews, sixteen immersions and twelve diary studies.

It is interesting to break down the researchers' profiles, since they impacted the relationships built with participants. As Johnson, Roubert and Semler (2022) point out, "Local researchers provide a critical corrective: they can return to a participant and their daily lives in real time to go deeper into certain stories." YUX was fully committed to leveraging the benefits of local resources, and made a point of balancing the need for local researchers and research expertise.

Nine researchers were involved with the project: a mix of Senegalese, Beninese, Congolese, Rwandan, Nigerian and Ugandan. The project manager interfacing primarily with WMF was a Franco-American living in Senegal. Most of the team was working directly for the agency, but some were consultants that had been trained at YUX Academy. 3

The semi-guided in person interviews lasted one to two hours in general, and were held at a location chosen by the interviewee. Stricter Covid restrictions forced some interviews to be remote from time to time. Immersions in the community events were a logistical challenge to coincide with the research calendar, because not every community was necessarily scheduling an event within the project timeline. The research timeline had to be extended (from four to six months), but the WMF team was understanding. This also impacted the diary studies, because they had to coincide with an event. The preferred method for them was a WhatsApp group, where a few days before and after the event, the country research lead would send prompts to the event organizer with questions surrounding the event organization and follow up. The goal of these "digital diaries" was to compare them to the other qualitative data collected and build experience maps.

The events the research team attended included training, activist events, member meetings, and annual community meetups. Event duration varied from a few hours to three days. A researcher would be present and observe the rituals, processes and tools each community put into place to create a safe environment for dynamic participation and involvement. The researchers used an observation grid to jot down

the event agenda, key moments, level of engagement and number of participants. The reality of this project, though, was that the local researchers had to build relationships with the communities even before the research started. This was only possible because of the networks in which the YUX team were already involved or knowledgeable about because they lived in those countries. The value of local connections is being acknowledged more and more, as Johnson et al. (2022) also emphasize:

> Working with local researchers [...] allowed us to enter long-established social networks and more rapidly learn about the logics and histories of these networks—knowledge that can often only be gleaned through longer fieldwork engagements.

In our project, this translated into being able to keep in touch with organizers who often had last-minute changes to their events. In Rwanda, for example, one event was pushed back twice. Once because the venue canceled the meeting (but kept the down payment!) and the second time because there wasn't enough commitment from the organizers, understandably disappointed by the loss of their initial investment.

Not only would those changes have been a nightmare for a non-local researcher, who might not have been able to change their travel plans, but the organizers were initially reluctant to share their misfortune with us. Because our Rwandan team members could meet up with the organizers multiple times, the story eventually came out.

Ideation, Prototyping and Testing

After the research, all the findings were presented as inspiration for a series of workshops with the Campaigns team, to prioritize features the developers and designers would work on in the coming months. This was the Campaigns team's priority, and in line with their focus on developing digital products. However, the importance of non-digital solutions uncovered during the research also led to a series of workshops focused on rethinking the global experience for volunteer organizers, especially the onboarding process.

In the final phase of the project, YUX designers used the insights about the digital features garnered from the research to design high-fidelity prototypes of a digital Event Center that volunteers could access. The prototypes were then shown (this time remotely) to volunteers to gather feedback over the course of twelve test sessions. A User Journey for an intentional onboarding of new volunteers was also shared for feedback.

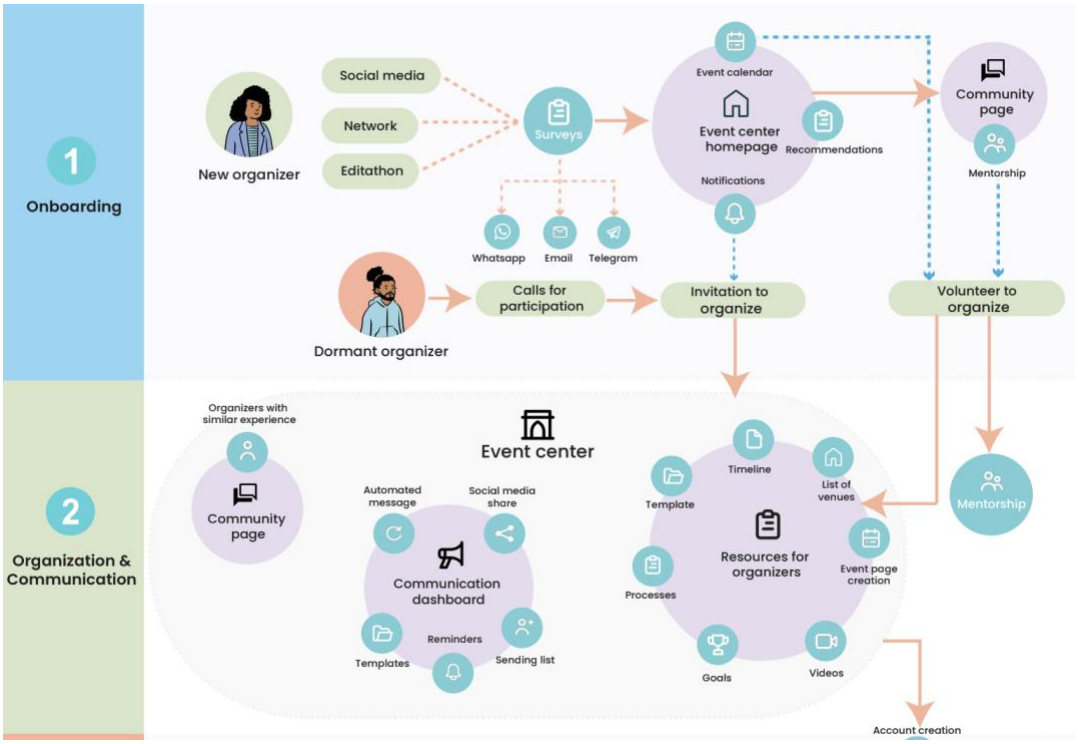

Figure 3: Excerpt from the second iteration of a new onboarding journey for volunteer organizers. The emphasis on mentorship and leveraging the organizer community is directly influenced by the research.

NAVIGATING FRICTION TO PRODUCE CHANGE

Contesting Western Assumptions: Learnings That Sparked Debate

Motivations for Volunteering

One of our main goals was to identify the motivations of African volunteers to be active members of their communities. This questioned what volunteering should intrinsically be and was an important point of friction. To summarize what Alex Stinson, a Senior Program Strategist at WMF at the time, told the YUX researchers during the stakeholder interviews: typically, most Wikimedian editors have been retired Westerners. They don't need to work anymore, have lots of time on their hands, and through their career or by sheer commitment, are digitally literate enough to edit Wikipedia. They consider volunteering as a completely altruistic activity, and the sheer satisfaction of having participated is the only reward they seek.

This is *not at all* the same profile as the volunteers (and potential volunteers) encountered in our research. YUX researchers encapsulated a very typical type of volunteer in the persona of the "ethical opportunist." This person volunteers both

because they want to impact their communities, and because they hope that their volunteer work will help advance their career and maybe even land them a job at the organization they initially were volunteering at.

As one more experienced Ivorian Wikimedia volunteer organizer said, "Obviously [for many people] you need to earn money, as long as there is no money there is no motivation. Some of our members work for the Foundation, that shows to the others that where there's a will, there's a way."

One volunteer we interviewed represented this profile perfectly. Originally from Guinea Conakry, his family had sent him to Dakar, where the schools are better. As a youth and a foreigner, he had very few employment opportunities.4 He was working hard to find his place while also trying to support his family back home.

He studied English at the university, and was curious by nature.

He could not find any paid work but he heard of a Social Entrepreneurship Community that organized community-creativity workshops for social startups. He found that interesting, joined and became a volunteer there.

Through dedication, and because he understood firsthand the hardships local youth faced, he eventually landed a job there as a community-engagement officer. His curiosity and motivation to impact both his community and his own life paid off positively. This dual goal was never seen as mutually exclusive. A memorable quote from this person was "volunteering is an entry point for me to show my skills."

For many veteran Wikimedians, volunteering was assumed to be *completely altruistic*. This led to heated debate between YUX and WMF, because the WMF research team knew that some of the current users would defend the position that editing articles and supporting the movement should be a completely selfless action. They were not sure they could start working on a support system that included motivational levers adapted to the needs of young Africans.

Because Wikimedia is an open-source movement, WMF actually has decisional power on very few things, and forcefully changing features could put the *existing* community of Wikimedians in an antagonistic posture.5 How could this change in approach be communicated? Would it spur tension between wikis?

Our job was to highlight just how important that type of potential volunteer was, and how much WMF needed to acknowledge and act upon that knowledge if they were really committed to inclusiveness. People fitting the "Ethical Opportunist" persona are among the most common volunteers to be found in Africa, and designing a win-win proposition that would be highly motivating and beneficial could yield terrific results. As a result, we created an onboarding journey towards volunteering that WMF could leverage through training, networking, recognition, and certifications. During the definition and ideation phase, YUX researchers were able to contextualize and remind the WMF team about the importance of keeping those motivators in mind.

Figure 4: The detailed persona of the Ethical Opportunist.

Effectiveness of Digital Solutions

The second main point of friction was the Campaign team's strong focus on digital solutions. WMF is a tech-first company. 6 The type of insights they initially expected the research to yield were about which digital tools – such as sign-up options, event-page layout, or sharing features – African volunteers might find most helpful. The department owning the research was the newly created Campaigns team, mostly composed of technical profiles, developers, product owners and UX designers. They wanted research recommendations to inform the design of digital tools for all volunteers, not just those in the Global South.

Without generalizing for the whole continent, African countries often have poor internet accessibility for their populations, whether because of the pricing or the quality of the networks. In many areas, young people are also digitally low literate, and even when they are not, event organizing is a paramount *relationship-based* activity. The tech-first approach that could work for editors does not apply in the same way for event organizing.

In the communities we observed, interpersonal relations between participants and organizers were the most important success criteria for an event. In the DRC, for example, people would participate because they knew the person organizing the event, at least by reputation. Because there is a lot of instability in DRC, trust and reassurance, including being able to contact an organizer, especially for the type of selfless volunteering the wiki communities have to offer, was very important.

In every country, sharing a phone number was an essential requirement, if only to be able to contact someone for instructions on how to find the venue (since street addresses don't always exist). Community- and event-organizing details were shared through apps such as WhatsApp and Telegram. But for WMF, which is committed to anonymity, collecting this type of personal data is not possible.

One major conclusion of the research was that some of the most potent ways to better support African communities would not be digital. The volunteer organizers had already found digital solutions that worked for them (using Google registration forms that allowed them to gather the necessary data, such as phone numbers, to communicate with participants.) What they really needed was a support system that understood their particular context.

We noticed that French-speaking African Wikimedians had an informal peer-to-peer support system through social media. Mentorship would happen fortuitously through twitter posts that connected people. The Cameroonian community, for example, had supported the Ivorians and Senegalese on organizing events, and simply learning how to use the platform. That kind of support was not easy to find directly through WMF.

Part of the reason for that is that in WMF's construct, people are readers first, then they become editors. Those who become volunteers are the most passionate ones, and they already know how to use the platform. That is not the case in Africa, where the motivation to volunteer is both more idealistic (promoting your culture) and more opportunistic. In fact, many of the African organizers were not at all expert at editing!

The current WMF community had few resources to help in that regard, and even fewer that understood the African volunteer's context well enough to make meaningful connections and give pertinent advice. So we recommended creating a regional group for Global South communities. The team would be composed of paid staff, focusing on helping to promote local user-group events, defining best practices for sources, training local volunteers and representing the user groups at commissions. WMF is currently piloting this recommendation, in a project called "The Africa Growth Project" as documented in an email with the subject matter "Africa Growth Project Pilot: Invitation for Input" sent on June 26, 2023 to the African Wikimedians email list:

> "The project seeks to enhance already existing community efforts by creating a more effective online learning component, which would allow in-person efforts to focus on already-engaged newbies who have obtained a solid foundation in Wikipedia policies and collaboration norms, maximizing the return on investment of human volunteer effort. The hypothesis guiding this experiment is that providing high-quality training to new and existing Wikimedians covering the basics of contribution to Wikimedia (including introducing the many ways to contribute beyond article writing) can double the retention rates of active editors in the region."

It is still too early at the moment of this case study publication to share the results, but the community's enthusiasm for and engagement with the pilot have already been extremely high.

Perceptions of Wikipedia as a "Neutral" Source of Information

Encouraging the creation of African content on Wikipedia seemed like a great initiative from all our points of views, but as we became more knowledgeable about the article-approval process, and as we heard more Africans' opinions about Wikipedia, this initiative became a third source of friction.

Wikis are organized by language. There is a French wiki, an English wiki, a Yoruba wiki (you will notice if you switch languages of an article that the layout of pages is different, this is because each language wiki community can decide for itself!). Admins and robots verify the validity of articles and article contents, and this is decided by the community of that particular language. For example, all articles in French are validated by the French wiki… mostly by people based in France! So if an Ivorian editor creates an article in French about a local artist, a French moderator may not consider the artist "important" enough to have an article on Wikipedia. Yet what authority should a French person have on upcoming Ivorian graffiti artists? The issues with that situation are compounded by the encyclopedia's requirements, such as sources and references, which are often hard to find for the buzzing, growing, ever-evolving abundance of activities in African countries. This digital control of voices and content sparked passionate debate within the team, some seeing Wikipedia as a Western tool of thought domination because of its requirements and validation format.

While reading Wikipedia was not our main research focus, we did get some interesting learnings. Many people mentioned, for example, that they did not know they could edit Wikipedia, and that certain specific topics, like pages for politicians, had biased information. Cultural agendas, consciously or not, transpire through writing, however neutral the author is trying to be. Because the editing and volunteering process was ill-adapted to the Global South, many Africans were disappointed, if not frustrated, by the content of articles about Africa on the platform. YUX's perspective was that our work could help mend that gap, even though things would not change overnight.

Some wiki communities, like the Yoruba and Swahili ones, are thriving and making the platform their own. The Ghanaians, even though they contribute to the English wiki, have enough momentum in their movement that they are growing their agency. WMF is aware of the challenges of structuring wikis by language, and supporting the volunteer organizers is one initiative to strengthen local groups, and help grow their influence. Ultimately because it is an open-source platform, when communities mobilize, they have greater impact. So we emerged from the process with a new sense of the importance of strengthening local volunteer communities.

But changes need to happen at every level of the organization so that the effort is not disproportionately placed on the volunteers.

The Burden of The Global South Researcher: Being Comparative Cultural Experts and Ethical Champions

Someone born and raised in the West, but who has lived in an African country for almost a decade, is aware of and able to explain many of the differences between the two places. When the African YUX team members started synthesizing and analyzing the content collected, the Western project manager from YUX supervising the project noticed an interesting trend. Her African colleagues were not emphasizing key learnings that she knew WMF would find particularly illuminating. Because of their emic perspective on the content, some of the information was too obvious, too normal for them.

One example was the absence of street addresses in most African cities, which made event details and registration features a challenge. In all four countries where the research took place, and particularly in DRC, participants mentioned the importance of being able to call event organizers to get directions for the exact venue location. This was also observed during an immersion in Senegal, where the community HQ had recently moved to a residential area where the streets were still sand and not asphalt. The event started almost an hour late because everyone had to call the organizer, who was constantly on the phone giving directions, sharing landmarks and detailed instructions for the last few hundred yards. Though this challenge was identified, the African researchers did not specifically point out that event venues often don't have precise street addresses. The researchers had grown up in an environment where addresses are not a regular feature (at least not the Western number/street name/city/ZIP code model). It would be as if an American researcher mentioned in their analysis that someone lived somewhere that *had* an address. Superfluous.

So we realized that not only did the African researchers need to be good researchers, they were also expected to know what gaps in knowledge the client had. This is a common requirement for any project if you intend your research to be useful, but at the scale of a whole culture, it takes on a different scope. It puts added pressure on local researchers, who suddenly need to become experts in two cultures instead of "just" being good at research.

But it can be a real burden because the cost of acquiring that knowledge is quite high. Studying and traveling in the West, let alone working abroad, is not available to most people from the Global South, of course. So that requirement creates a barrier to entry into the field, making it harder for local resources to be acknowledged for their expertise.

In addition, local researchers may also find themselves in a position where their own values and Western client expectations are in conflict. One such situation occurred during the recruitment process.7 Our initial desk research had identified an

interesting community in Uganda, but they did not wish to participate in the project or give information about their processes and systems to a Western organization. The organizer's answer was "We don't want to make contributions to information available to the Global North because that's what we always do. I am not interested and neither is my community."

That was quite early in the project, and led to some great conversations internally at YUX. How could the "low hanging" advantages of local resources, such as proximity with the populations, knowledge of context, language, access, even environmental concerns (fewer plane flights) not be diverted to yet more exploitation and more efficient "extraction" of information by the West? Are we avoiding "feeding" northern expertise just by working with more inclusive research teams or, on the contrary, are we making that process even more efficient? As design thinkers and HCD practitioners use ethnography, are we perpetuating exploitative practices through lack of hindsight? Hasbrouck (2015) pinpointed the "ethnography-as-a-tool' perspective in the design thinking process:

> The ways in which design thinking is often integrated within these organizations — structurally deployed with an 'ethnography-as-tool' perspective—aligns quite comfortably with the ethnographic gaze of early anthropology. From this view, the design researcher's position in the field of consumers is often presumed to be central, authoritative, and unquestionable. Upon return, the design researcher is expected to bring back and represent the voice of the target consumers for the design team—whose perspectives ultimately 'really' count. You can see that this is a dynamic within which it's all too easy to replace 'natives' or 'colonial subjects' with 'consumers' or 'users.'

At YUX, we believe that local researchers naturally promote and amplify the positive values of ethnographic thinking, while minimizing if not erasing the "gaze outward." When the person you are interviewing could be your little sister or your neighbor, there is no otherness. Diary studies turned into conversations, without the gravitas of formality, and with candid and down-to-earth exchanges instead.

One example of this was when an organizer in Senegal turned out to be writing to a local researcher in a diary-study WhatsApp conversation… from his hospital bed! He had had a bout of malaria in the days leading up to the event and was being treated for it. Although he was extremely tired, he actually appreciated that we were getting in touch and checking in on him. We knew what hospital he was in, because we had been there. We were able to cheer him up by sharing stories about it. We stayed in touch for quite some time after the official "research phase" was over, and some later conversations deepened and nuanced our understanding, and improved the quality of our recommendations.

In this way, with local teams, research becomes ongoing, deeper and richer. The human stories emerge with greater arcs. Others are not just "others," they are real people. But to achieve this, local researchers should not just be tools for improving access. If we are not contributing to the analysis and recommendations, then it is

exploitation. And if we *are* contributing, then we need to have enough influence and respect for our contributions to be valued. WMF was a great partner in this aspect, and consolidated our budding team's determination to be the voice of their people.

Achieving Impact: Productive Friction

Decision-Making Power Remains in the Global North

Tensions in this study stemmed from the differences in backgrounds and positionality between the WMF team and the local African researchers. Because every team member's unique background informed what they noticed and how they interpreted the research, new pathways were possible that would not have emerged otherwise. We might call these tensions productive friction. Both teams had a positive attitude and recognized the different outlooks, and who held expertise on what. The WMF team respected the conversations and could not have been a better partner. This being said, it did not mean that certain key recommendations were followed through or prioritized as the YUX researchers advised, which is a testament to the difficulty of initiating change, and, as the design anthropologist Dori Tunstall notes , representation has to be at all levels of an organization, with more than a token individual but a cluster of people who are committed to promote change (Tunstall 2023). For us from the African research team, the amount of confidence in ourselves to voice our opinions and conclusions when we knew they would challenge or potentially make a project pivot had to be very high, and honestly was not always easy to find.

Through a combination of the WMF team's willingness to listen, and our motivation to represent our communities, the conversation that needed to happen happened. But the final limit remained: the decision-making capacity remained in the hands of the client, and some features without which African volunteers would practically not be able to function were deprioritized because they were too complicated to implement at the time.

The messaging options mentioned earlier are a case in point. Accommodating volunteer organizers' need to collect phone numbers would have been a great opportunity to demonstrate willingness to go the extra mile for inclusion. But because the WMF respects rigorous anonymity protocols, this was a complex issue. The Campaigns team was a new team trying to ship a registration process quickly, so finding a solution for an on-the-ground reality of African community organizing was deprioritized. This highlighted a limit between wanting to serve the Global South, but not being willing to adapt to the Global Souths' practices when it required more effort than initially estimated. Ultimately, though the YUX researchers were frustrated, the WMF Campaigns did understand this feature was important and hopefully it will be addressed once the team has shipped simpler features and accessed more funding. Having the international team so intimately embedded in the

product design process made these conversations unavoidable, which was what the Foundation was looking for. As Hasbrouck (2019) put it:

> Contemporary ethnographic thinking turns the gaze back on itself, forcing organizations and practitioners to come to terms with their own histories and orthodoxies, and to face how those realistically impact their capacity, or inclination, to innovate.

Any change in the behemoth-like Wikimedia ecosystem is a huge endeavor, requiring community support. Creating the content, making it accessible and digestible, and sharing stories are among the most efficient ways to encourage change.

Core Changes in the WMF's Support to Volunteer Organizers

The biggest impact of our work was in the adoption of a new holistic approach to the volunteer-community-organizer experience, based on the motivations of profiles such as The Ethical Opportunist. In addition to the Africa Growth Project mentioned earlier, the WMF Campaigns team is also leveling up how WMF supports its volunteer community *globally*, with an "Organizer Lab" for all Wikimedians being piloted within a year of the research.

Four of the Lab's five pillars directly reflect recommendations from our study: Mentorship, Peer-to-Peer Support, Training and Resources. Although this lab is the culmination of multiple studies and internal advocacy for organizers, such as the 2019 Organizer Study, the African organizers' perspective confirmed and reinforced the necessity for it. Here is how WMF communicated about the launch of this program to the Wikimedia community:

> We are also designing the course based on several other indicators beyond our team's work: the Movement Organizers research and other research we have been doing as part of the Campaign Product process have emphasized how hard it is for new organizers to understand how to get more involved in the movement.[8]

YUX has been working for WMF on several other research projects, always with an African focus. Mike Raish, from the Core team, shared with us that features such as voice-to-text/text-to-voice are now being seriously considered thanks to the advocacy work of our research findings and recommendations. Voice-to-text/text-to-voice would be extremely helpful in the African context because of the high use of mobile interfaces, low literacy rates and the fact that many speakers of African languages do not write in their native tongue. "Many people at the Foundation have taken that up, and it's a real thing."

Growth at YUX

The YUX team also grew through this project. We were still a young team at the time, and navigating the path of growth for our maturing agency was akin to performing a delicate balancing act. We aimed to expand rapidly, but we were mindful not to push ourselves so hard that we might crumble under the pressure, or betray our values. It was all about finding the right rhythm and balance, between internal and external friction in our journey towards growth.

WMF's vast repository of information, accumulated over years of global projects, was an invaluable resource. On the other hand, our junior researchers found themselves grappling with a flood of new terms and concepts, often needing to reframe and redefine them based on Wikimedia's unique definitions. The learning curve was steep. From navigating a bilingual team to the logistics of doing research in four different countries, YUX redesigned its internal structure thanks to this challenge.

One major output was the creation of the Research Ops position at YUX. We also introduced a new feature within our panel product, LOOKA, designed specifically to facilitate participant-recruitment-and-compensation management seamlessly. This feature alleviated the logistical complexities associated with research operations. These adaptations not only improved the efficiency of our research operations but also empowered our researchers to concentrate more fully on their primary roles, enhancing the quality of our research outcomes.

Ultimately we will grow and become more professional, but never sacrifice our voices. Recently, a partner from the WMF sent our Product Research team the best compliment designers could get: "The team that requested the report liked it, they are making decisions based on it, and it is affecting the interface that millions of people will be using." From Africa, to the world.

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NOTES

This project would not have been possible without WMF's 2030 goal for better representativity in Wikipedia articles, and the amazing and passionate people who work there and are committed to making this vision a reality. Thank you Ana Chang for having sought out local researchers, Gabriel Escalante for your willingness to share your expertise, and the whole Campaigns team who were amazing to work with. Thank you Rita Denny for your patience and the great resources you shared with us. And finally thank you Yann Lebeux and the whole YUX team for being such amazing people to work with.

1. In the Wikimedia sphere, editing includes both creating entries and modifying existing ones.

2. YUX provided shortlists, and the WMF Campaigns team voted for the top three communities for each country. If a community did not respond or refused to participate, the community with the next highest number of votes, or a similar one in the country, was contacted. In each country a Wikimedia user group was also included, for a total of sixteen communities.

3. A training program for African designers and researchers founded by the YUX agency.

4. Approximately 61% of Senegalese are under 24 years old (40% under 14) and with the formal sector accounting for only 3% to 4% of the job market, many are forced towards the informal sector. For university graduates the options are very scarce.

5. Although the Wikimedia Foundation is the "client", they are not the ultimate decision-makers for all things wiki-related. Because it is an open-source community, in reality WMF has little power to decide what the movement does. Even if they try to impose a change, users can refuse it, or create a version they prefer. So the issue of adoption by the community is primordial.

6. Decisions are made by technical teams based on developers' understanding of user needs, rather than a human-centered approach focusing on understanding underlying issues before implementing change.

7. Recruiting was a challenge because WMF had no previous relations or contacts within the communities and couldn't help with introductions. Instead we were able to leverage being local. All in all, out of the twelve initial non-Wikimedia communities reached out to, two never responded, and one decided to withhold from participating in the research.

8. All information about the Wikimedia Organizer Lab led by the Campaigns team is available here: https://meta.Wikimedia.org/wiki/Campaigns/Organizer_Lab

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In Pursuit of Authenticity

Commodified Community, Curated Experience, and Fandom

LOGAN MCLAUGHLIN, SpaceTime Strategies

This paper takes a contextual look at economic impacts of hyper-monetization, immersive advertising, and general shifts in the fandom subcultures around gaming over the past decade. In unpacking notions of cultural authenticity from a branding and marketing perspective. I hope to point out further trends in the monetization of fandom and community that serve as engines of continued change and driving forces in the continued development of gaming culture. While much scholarly work is done on online spaces around gaming specifically, it is often focused on community experience whereas in practice, questions being asked by companies are often how to make those communities more profitable customer bases. I want to use my experience in negotiating the desires of companies to advertise with the desire of communities to not exist in a capitalist hellscape to examine the friction between these paradigms and what it may mean for fan cultures moving forward. In the end I hope to question whose interests we as ethnographers serve in working in professional capacities alongside brands. Often serving in our classical capacity as infiltration specialists, those of us who pursue careers as practitioners often must reckon with the impacts of capitalism on the sectors in which we work. We too are subject to the same pressures as content creators and event organizers, while our passion may be educating and bringing clarity and understanding to help brands reach "authenticity", we too become a part of this shift toward commodification of community. Eschewing the narrative of the heroic anthropologist, last bastion of community interest, I hope to call into question that against the seemingly ineffable force of capitalistic intent and the cultural change it begets, how can we still carve out a space for leisure and fandom that isn't centered on monetization?

INTRODUCTION: ON GAMING, AUTHENTICITY, AND FRICTION

Authenticity is perhaps the most pursued and prized attribute in the realm of gaming events and conventions. Ever since Barbara Stern (1994) called for marketing scholars to consider authenticity in branding, it attained an almost cult-like fascination across industries.[1] In the gaming events world, authenticity is closely associated with modes of immersive advertising or "activations" used to promote products at conventions and in online spaces. This paper will investigate the friction in the pursuit of authenticity that emerges from the competing goals of fans and for-profit companies. For fans, the purpose and attraction of a gaming event is often social, of sharing in the love of a common interest with a wider community and celebrating the things that catalyze fandom. On the other hand, for profit organizations often deter genuine social and cultural interactions by aggressively commodifying fan culture under the guise of authenticity because of their underlying emphasis on advancing profits over nurturing the community.

The resulting friction as it plays out in the material space of gaming events, conventions and culture is peculiar, spectacular and at times, self-contradictory.

Structurally, this paper is divided into five parts. The first section will develop our understanding of the concept of authenticity by drawing on theoretical discussions in tourism, art and gaming. The next section provides a brief history of conventions and fandom and a classification of different types of events that are foundational to gaming culture. The third section of the paper will delve into a concrete, well known example of corporate commodification successfully infiltrating fan culture via a material artifact—the gaming chair. Next, the paper will expose the internal contradictions and frictions that occur in the physical space of the convention, and it plays out during an event. The conclusion of this paper is a reflection on the role of the ethnographer, offering a provocation of how we might remediate this friction through our work.

OVERVIEW: AN AUTHENTIC DEFINITIONOF AUTHENTICITY

What exactly *is* authenticity? As George E Newman (2019) argues, it's important to remember that the idea of authenticity is a historical, domain and values-based construct that is often unstable. Even in the art world, for example, where authenticity is tied to the provenance of a work, this somewhat straightforward requirement can still get messy as in the case of performance art (Potter, 2010) or pop art Price (2007).

More relevant to the work in this paper is the definition of authenticity from the sector of tourism and cultural commodification. Cole (2007) points out that notions of cultural authenticity in tourism are often tied to commodification of culture for a eurocentric western audience. We can see this play out in mundane conversations in different categories—what counts as authentic food is probably the most common example where everyday people themselves wrestle with the concept. So why then do we find ourselves so enamored with the concept? Furthermore, why are marketers and companies seeking the veracity and perceived authority that accompanies authenticity?

There is a delicate balancing act with which event organizers and event companies, whose budgets for the most part come from presenting sponsors, engage. The relationship between sponsoring companies and the gaming communities they advertise to is inherently transactional and the attention of those communities is seen as a commodity. Making events bigger and better requires funding, but that also means more brand interest being catered to. And among different types of events there is a spectrum of manicured presentation that is mostly made possible by external sponsorship. This converts events to what Gee (2005) would call an affinity portal, a transactional space for marketing to a target community niche.

But there are also some inherent aspects to fandom that complicate the relationship between fans and corporations further. As Jenkins (2006) points out, modern notions of fandom are largely participatory in nature and the culture industry

is one that lives and dies by fan engagement. This engagement and its invitation toward participation also encourages fans to become creators, contributors to the vast sea of "content" from which fandom emerges; and capitalism urges those producers to commodify their passion, to convert their production of content into a stage for "authentic" advertisement. An authenticity partly engineered by fans and partly by brands whose influence on these fans turned advertisers has repercussions on the general aesthetics of fandom at large.

While an argument can be made that media fandom is inherently consumerist, it is also generative and much of what we associate with "content creation" has its roots in hobbyism. Turk's (2013) work on the gift economy in fandom highlights this in terms of art production. As fan works continue to exist, they are minimized by cultural subtext inherent to the growing idea that "content creation" should be monetized. Much like event organizers need sponsorship to make events happen, creators shift toward monetization of their fandom and passion as a way to justify the amount of labor put into their fan works.

Viewed through this lens, the notion of authenticity is much like the nostalgia associated with Walt Disney's Main Street USA—a manufactured facsimile of something that once existed only in so far as it was imagined to exist. Both Main Street USA and market activations at events are what Baudrillard (1983) describes as a simulacrum. But in the same way that Main Street USA cannot truly capture the intimacy of small-town American living, large scale events often struggle to not feel corporate or to capture the intimate nature of a smaller fan gathering.

To truly understand the cycle of commodification and its entanglement with authenticity at fan events we have to go back to the beginning.

CONTEXT AND HISTORY: DON'T LOOK BACK YOU CAN NEVER GO BACK

Conventions associated with fandom trace their roots back to science fiction and literature fairs with the most notable example being the 1939 World Science Fiction Convention (WorldCon) in New York[2]. The convention, organized by science fiction literature fans and authors, was held in conjunction with the New York World's Fair, aptly themed "The World of Tomorrow" and included some of the first examples of modern cosplay in the form of science fiction inspired costumes and outfits. Notably this World's Fair would be formative to two industries that are both discussed in this article: the theme park business and the conventions business.

The first WorldCon was unique in that it was the first convention in the US to truly drew fans from across the country in larger numbers, fan meetups and gatherings of various literary societies had been occurring for most of the decade prior but nothing quite on the scale of WorldCon, which was also entirely organized, self-funded and operated as a bottom up, fan-based endeavor. The bottom up, fan-organized model was disrupted when corporate entities, who until the early 00s had

mostly focused on trade shows, entered the equation. Trade shows had always existed in the games industry but tended to be closed events with limited press access and a focus on business and corporate showcases. Some trade shows would be open to the public usually for a day or two and would in some ways mimic the Worlds' Fair mentality of showcasing future products to consumers. As companies who specialized in trade shows entered the space, it fundamentally altered the setup of conventions.

As it stands today there a few ways an event can be operated:

- Events managed by events companies which make up the largest portion of notable conventions.
- Events organized by nonprofit organizations like San Diego Comic-Con (SDCC)
- Events run by volunteer organizations or volunteer organizers such as WorldCon.

In all three cases, the corporate industry has taken up a key role in the realm of funding. Traditionally vendors could purchase booth space and a vendor could be anyone; a local book shop, an independent game developer, or in some cases large companies who want to interact with people at the show. But slowly over the course of decades, the exhibitor halls of most fan conventions came to look more like the expo hall of a trade show. The shift toward more corporate interest in fandom spaces is also present in other spaces, not just conventions (cons). For instance, if we examine the upsurge in corporate sponsorship of livestreamers and even the very marketing flavored rebrand of a wide and diverse array of online creative endeavors to simply "content creation" we can see the reduction of a wide variety of unique types of creative work and styles of video or livestream being produced, to a new type of vertical to advertise within.

But the entry of brands in a more profound way also suddenly led to the obsession with authenticity, an acknowledgement that the unique affordances and intimacy of these new media had a nuance to them that seemed more personal. This argument is multifaceted, not only presenting a marketing front that is meant to be naturalistic but also incredibly subtle—the definition of authenticity that emerges is "marketing so good, no one realizes it's marketing." This is a trend not unknown in the realm of online media, we saw it in the early days of YouTube when suddenly sponsors were cropping up in videos, Maker Studios and other companies began to emerge as talent agencies for the new job of "influencer." This coincided with a realization in marketing that Millennials as an age set were leaving television and other traditional verticals to watch more niche content online.

Generationally the group of people who had grown up bombarded with near constant ad breaks on TV, billboards, popup ads on the internet had decided that content from people like them without ads was enjoyable or refreshing. Despite this migration, the nature of advertising is to go to where the people are and so we began

again the cyclical process of what Cory Doctorow (2023) has called "Enshittification" or platforms that go from social spaces to marketplaces. Cat Valente (2022) covers this experience in her article's title "Stop Talking to Each Other and Start Buying Things". The notion that as a new form of communication and a new place for people to interact emerges it is as ever tainted by commodification in some form. Whether the excuse is "Well we have to keep the lights on" or "Servers aren't cheap" or the classic "Nothing is free" eventually these often-free services, these digital locales designed for interaction between people of common interest fall to monetization. To quote Valente's rather powerful summary of this effect: "*Stop benefitting from the internet, it's not for you to enjoy, it's for us to use to extract money from you. Stop finding beauty and connection in the world, loneliness is more profitable and easier to control"* (Valente, 2022). So, what then does all of this have to do with conventions? Events which, by their nature, bring people together physically.

The answer is a bit of a complex one, a cultural undercurrent of the whole endeavor of making community in the age of the modern internet. While communication has sped up the world of fandom from zines and letters to forums, web zones, and social media in all its myriad, this also creates a more defined footprint, a data trail increasing the visibility of passion and fandom. With visibility though comes spotlight and with spotlight exploitation. This is not to say at any point that running a fan gathering in person at a venue is a "free" thing, things cost money that's a baseline within a capitalistic system. But if we look at the history of events many early conventions operated at a loss. As Klickstein (2022) highlights in his fantastic oral history of San Diego Comic-Con, it was years before the Con, which would become a sort of blueprint for modern Cons, was in the black financially.

While SDCC as an organization still operates as a nonprofit, this is no longer the case for a large number of the bigger conventions at least in the US. Whereas Comic-Con has grown to its current size over a period of decades, other events attempt to start at a size more comparable to SDCC and are able to do so with corporate investment. This creates somewhat of a divide, the corporate owned large scale shows that hire events companies and subcontractors to handle everything from registration and check-in to running whole areas of the expo hall make up the bulk of larger cons. Meanwhile many of the smaller, local conventions that get put on around the US and Canada only happen because of a dedicated volunteer committee devoting time to making a show happen, even if some are small businesses with some amount of full-time staff. Thus, some of the biggest problems facing smaller events are organizer collapse or lack of funding and one of the biggest barriers to growth is acquiring sponsorship or the ability to pay for larger venues and grow. Meanwhile some of the largest, most iconic conventions such as Anime Expo, SDCC, and notably Japan's Comic Market or Comiket all operate on not-for-profit models.

We live in an era of corporate consolidation however, and since the mid 2010s various larger trade show brands such as Reed-Elsevier Exhibitions (RELX) and Informa Connect, have been actively acquiring larger local conventions and fan events (Informa Connect, 2015; Gale, 2023). Important to note here is in this process smaller marketing firms or fan groups that support small businesses are being bought up by larger entities with an eye for larger clientele. A trend that mirrors some of the aspects of growth of a con itself. Therein lies the double-edged sword of growth, as events grow they lose the intimacy that founding members associate with the con. As more outside investment and corporate sponsorship moves in and priorities shift toward profitability of an event within a portfolio rather than one or two annual events occupying the full attention of an organization, there is sort of an inevitable loss of intimacy at a macro-scale that occurs. And for an event to remain at that size it depends on the money more from its sponsors and B2B interaction than simply ticket sales, which of course caused issues during the pandemic.

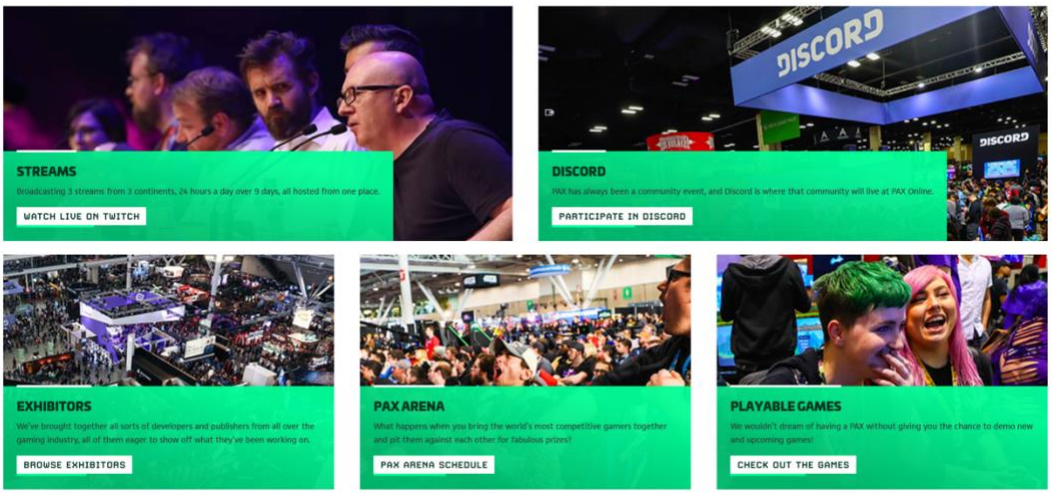

Figure 1. The landing page for PAX Online, a digital event run during the pandemic, the page advertises streams, a discord chat server, exhibitor list, PAX Arena, and playable demos of games. Accessed via the wayback machine: https://web.archive.org/web/20210226100731/https://online.paxsite.com/features

The pandemic era has been an interesting two years for this space. 2020 saw mass cancellations of events and a big move toward online events in lieu of in person cons (Woo, et al., 2022; Reed Exhibitions 2021). But online events did remove a particular element from the experience, the meeting other people and interactivity of an event. Many online events were prepacked video content, live streams with giveaways, discount codes for associated online vendors, etc. It truly was an exercise in attempting to reduce a largely nuanced and in person experience to a collection of panels, trailers, activations, and talks. In some cases, like PAX Online (Fig 1) and

DreamHack Beyond (Fig 2) there were various attempts at simulation of the con floor experience.

The most important element of an in-person event is the feel of fans being able to directly interact with the industry and each other, and in the case of these digital events that was widely lost. One of the main goals of course, was to make good on promises to brands and sponsors, many of whom had pulled out of events for fear of being associated with an event where an outbreak might occur. This meant numbers and metrics became key to the two years of "online only" between 2020 and early 2022 with an aim to measure the "reach" and "impact" of a sponsorship, but when left to pure numbers, the results in some cases were less than ideal. Fast forward to late 2022 and into 2023 and the return of live events was a rocky one at least internally which shifted the focus once again to making sure events could be funded and turn a profit.

So let us now turn to the matter at hand, the question of authenticity within this world of fandom around gaming and events.

Figure 2. A Still from the trailer for DreamHack Beyond a browser-based convention experiences launched by DreamHack during the pandemic. It bore similarity to browser-based games like Habbo Hotel https://www.youtube.com/watch?v=9rOyf-HaVdY&t=64s

CONFLICT: CHAIRS FOR PEOPLE WHO DON'T SIT

To discuss the notion of authenticity through the corporate lens we have to understand how companies see the wider gaming community. So, let's talk a bit about the ways that "gamers" have been referenced in my own experience. Fairly early on in my career, I was in a meeting where investors in various esports companies were discussing the industry and a phrase that will stick in my mind forever floated through the conversation "Wealthy Millennials". Bearing in mind that this was at the same time that articles bemoaned millennials not spending money, not buying houses, living with their parents; the problems and economic pressures on a

generation beset by student debt and simply not engaging enough with traditional notions of economy[3]. And yet, in this meeting these people were convinced that the wealthy millennials were the gamers because they "had a higher index of discretionary spend on their hobbies" based solely on credit card data.

The term was not only uncomfortably oxymoronic but made an assumption of a mostly semi-affluent, mostly white, and mostly male demographic of "gamers" which is a myth still being unpacked in the wider industry. Volumes of work have been compiled on the subjects of diversity and the nuanced visibility and invisibility of race in fandom and gaming, the edited collection *Fandom, Now in Color* (2020), and works like *Intersectional Tech: Black Users in Digital Gaming* (2020) do a great job of discussing these topics in more depth and nuance, but the core of the problem does still remain. A base assumption that the gaming community is mostly white, mostly college-aged, and mostly male. But it doesn't always end there, there is a pretty rampant reductionism and practice of what I like to call "invent a guy" methodology.

Non-research-based marketing personas can be a dangerous thing, often riddled with biases, and gaming has not been spared this practice by any means. The notion of what a gamer is has changed monumentally in the past decade at least for those within the wider community. In practice, we have seen greater diversity, inclusion, and visibility at events, a wider age range that continues to expand, and a wider audience in general still subdivided into a million overlapping subcultures with interests that intersect and connect in highly individual ways. The core disconnect is that in many cases, companies (outside of specific marketing efforts to, for instance, target women in gaming, or target fighting games tournaments for "diversity") have tended toward that idea of a white 20-something male. They invented a guy, and in more recent years invented a more gender amorphous gamer construct and have stuck to it.

A prime example of this has been the evolution of gaming "gear", which coincides largely with the explosion in livestreamers. Tim Rogers of ActionButton explained this concept beautifully in his review of Cyberpunk 2077 (2021). In that review, Rogers charted the rise to ubiquity of "gamer chairs" styled after race car seats. The core of the argument is that people who play games, from a hobbyism perspective, had "famously put up with bad hobbying conditions" to the point of memes communicating as much (Figure 3).

The iconic image of wood paneled basement and an old dining room chair with a CRT playing *Demon's Souls* has been passed around innumerable times online. The image itself is sort of a nod to a communal experience of a generation and one that has come up in interviews time and time again of what things were like *before*. When I interview people about the evolution of their PC gaming setup those who are in their late 20s and older (including the aforementioned Millennials) they often talk about a time before gaming chairs, when an Office Depot chair was a luxury and when some assemblage of a sideboard, a desk not meant for several monitors, or the wonderful late 90s computer hutch was the setup. So, what changed?

Figure 3. Salsa Shark, 2014 https://www.neogaf.com/threads/show-us-your-gaming-setup-2014-edition.745183/ A universally recognized image in online circles of a wood paneled room containing a pile of firewood, a Clint Eastwood poster, a CRT television sitting on the floor with the opening menu for the game Demons' Souls displayed and an antique wood dining chair sitting about three feet from the television.

Gaming chairs were part of the invention of "the guy" in gaming, the rebranding of cool and slick with lots of RGB lighting. The first gaming chairs were commercially released in 2006 and almost immediately were highly visible. Rogers (2021) points out that chair companies almost immediately began sending chairs to streamers and youtubers. For many this was probably the first decent chair they owned so in going from a cheap folding chair or office chair to something that felt markedly nicer it became easy to naturally promote. To quote Rogers:

> "After enough influencers saying enough times… 'Guys, I LOVE my new chair'... After you see that $400 price tag enough times, your brain plays a trick: You think, that's how much a chair costs." (Rogers, 2021)

By creating necessity, by increasing visibility of something to such a degree of cultural penetration that an audience simply believes "I need a gaming chair because I mostly play games at my desk", marketers planted the idea of yet one more piece of the gaming setup. And this happened over and over: PC cases with RGB lighting, Razer's iconic bright green headphones, mechanical keyboards, suddenly there was

an explosion of "gamer" branded items that had reached a level of cultural association that a "real" gamer setup had to include them. By way of complex immersive marketing of multiple products, companies codified what an *"authentic"* gaming setup needed to look like.

In interviews and photo studies I've conducted for clients over the years I often ask participants if they have photos of LAN Parties or past events they had gone to, you do begin to see the origins of some of these trends. In the 1990s looking at images of builds done by professional PC builders, hobbyists, and industry professionals we see a lot more UV lights with specially treated internal parts that react to UV present inside of PC cases. However in the 90s and 2000s you also saw a good number of cases and towers, even for custom built PCs, that were relatively low profile, similar to a standard Gateway, or Dell gray or black tower cases some may remember. The UV style lighting went out of fashion sometime after 2014 when both Razer and Corsair unveiled the more modern RGB LED products that we see in a lot of "gaming" computers today.

These shifts are sometimes matters of trend forecasting, in others like in keyboards it was first a push toward quality design for the discerning consumer pulling from the fringes of home built mechanical keyboards into more commonly available consumer models, and yet still in others it is a case of seeing a void, there really weren't "gamer" chairs for a long time outside of incredibly niche products, the brands of which have been all but forgotten by people who can show you a picture of the setup and say *"My dad got this for Christmas one year, it wasn't particularly comfortable and it had speakers mounted in the headrest so you couldn't actually move it too far from the desk"* (Figure 4).[4] By the 2010s it was a foregone conclusion that a "nice" gaming setup also featured a nice chair. More often than not, said chair was the aforementioned race car inspired design.

The connection here, where it all comes back into line with the idea of events, is that oftentimes those events are venues for marketing. Both LED PC cases, and gaming chairs made their debut at CES (The Consumer Electronics show), and gaming chair companies heavily sponsored early esports leagues. Gaming chair companies would thus feature prominently at conventions, especially more gaming focused ones with a LAN party[5] component and either sell off chairs that were provided to the event to avoid shipping them back or give them to event volunteers who lived in the area to save on shipping. Hardware companies would create gaming sub brands such as Dell's Alienware, Asus' Republic of Gamers (ROG), or HP's HyperX to name a few. Whereas CES is mostly a trade show, meeting customers where they are necessitated presence at fan events and cons. More and more often large corporate booths dominate expo halls, prominently branded sponsored equipment appears on stage, in freeplay gaming areas, and at booths offering a "try before you buy" experience baked into the wider event. But this doesn't extend to just products aimed at a gaming or fan audience specifically, everything from car insurance, to large media brands want to be present and visible

at the various gaming and pop culture conventions. Their presence is mostly a pretense to reach a demographic that so readily spurned traditional advertising, and to participate in driving cultural norms by way of dictating what the next thing in "real" gaming aesthetics is.

Figure 4. Photo of the Imeron IGS350 Released sometime circa 1999, photo courtesy of http://www.atpm.com/5.03/intensor.shtml

DISCUSSION: MANUFACTURED AUTHENTICITY, COMMODIFIED FUN

As the line blurs between trade shows and fan shows, as more conventions become homogenized under larger brands who frequently work with similar subcontractors, vendors, and personalities, what happens to the general feel of an event? Alongside the big media premiers, the esports stages, the large corporate booths, you still have independent developers, local charities and small businesses. Beside the huge celebrity or influencer panels you will still find panels where someone really just wants to talk about their favorite level of Super Mario World, or their favorite obscure Sega Saturn game. Artists' alley, typically an area of a con where artists can rent a table to sell prints or other merchandise featuring their art, remains a staple of shows despite in some cases being much smaller, with higher price points for artists to rent tables and often alongside other more evergreen art vendors. There is, in most cases, simply *more* of everything else, more corporate booths, more booths in general, areas designed for larger crowds to service the

bigger audiences of attendees. There can be a real feeling among organizers of having to fit everything into an event, wanting to represent every facet of a subculture, every genre of game, every type of streamer or at least the ones that are brand friendly. But with a widening of scope so too comes a loss of macro level intimacy in favor of pockets of intimacy. This is where the nostalgia begins to take shape, for the people going to cons what they remember, what they highlight of their experience is often interpersonal in nature.

Thematically speaking, a lot of people are glad they got to meet a creator important to them, or that they had a good time with friends or that they received compliments on their cosplay, occasionally someone will highlight that they won a giveaway or got a free keyboard but for attendees the experiences that make an event are social.

With that being the case the brand side is often more concerned with a microcosm of their own activities, like that first World's Fair but on a smaller scale, some amount of theme park design goes into making a good booth. In a majority of cases larger brands may hire ad agencies or marketing firms to design their booth but the experience itself is often designed in a vacuum, and often under the misconception that a booth will be the cornerstone of an event experience.

Meanwhile for smaller booths, indie devs, etc the most they may design is a banner with the title of their game, maybe a few cardboard standees knowing that they are one of many creators present at the event (Fig 5). Between this and the general nature of convention centers as blank slates, different events can often feel eerily similar when you view the expo hall from above. Sure, there may be idiosyncrasies of different venues, convention centers, stadiums, etc, but the idea of replicability also bakes into the "authentic" experience. From an attendee standpoint it is pretty great if they, as many do, only really go to one or two cons a year that are close to home for easier and more affordable travel. This pushes events to be like other events and creates a ripple effect of standardization.

Much like any business franchise, this sort of homogeneity of the basic elements of an event promises patrons the somewhat magical experience of consistency. No matter where you are there will be a con that will be just like the con in that other city you've always wanted to attend. And corporate backing makes sure that event is funded and has vendors signed on for year long contracts and multi-event booth agreements so that it will truly feel the same in a lot of ways. Some vendors who set up booths to sell things like mystery blind boxes[6] or other more general merch booths may even make a seasonal job out of working the convention circuit. This kind of deal also works well for small businesses that specialize in more niche products such as custom game controller brands. But with this similar feeling backdrop what then becomes of the authenticity of an event? Well to a large degree the authenticity is in the replicability, the sort of sameness of the backdrop for the event itself, the consistency, and the ideal of striving toward being the best possible version of all the various local and small shows over the years. Much like Main Street

USA it can begin to, for the experienced attendee or for those in the events business, elicit a strange experience of something all at once being its own entity but with all the intent exposed, a simulacrum that knows exactly what it is supposed to be in concept and has truly smoothed out all the edges. So if we consider the con, the show, the expo hall and all its components to be the backdrop for experiences, what then is the answer to the question of creating an "authentic activation" for a brand? When the expectation of the attendee is much the same as at a market, art fair, or festival, browsing or having a brief interaction with as many or as few things as they may want. When interviewing attendees of events and asking about what they want to see at the event the majority respond with two or three things, or in the case of a group of friends attending together one or two things they each want to see or experience and the rest is exploratory the sort of classic "well of course we want to check out the booths and see what there is to see" response in its many variations. Booths, while eye-catching and often serving as a sort of anchor of operations for a brand at a show, may be less interactive in some cases and this is where the idea of "immersive" activations comes into play.

Figure 5. PAX South 2017 show floor. Author's personal photo.

Sponsorship activations are agreements wherein a sponsoring entity, in this case let's say a PC manufacturer, makes an agreement with an event to have a presence at said event. Most commonly people think of booths or panels or even just throwing money at making a tournament happen, but with some finessing there are more naturalistic ways for sponsors to activate in ways that make sense. When pursuing an "authentic" activation one of the key questions to begin with is where can a brand actively facilitate the rest of the experience happening at the show? For our aforementioned PC manufacturer the answer is obvious when it comes to gaming shows, simply provide all the PCs needed for the event. More often than not this will include PCs used on stage for tournaments or may feature a "Freeplay" area where

gaming PCs are set up and preloaded with games for attendees to sit and play with friends or just to take a rest from walking around a convention center. But at an event where the main focus is gaming or event that may only have gaming as one of many subgenres present this sort of involvement does two things: first it's for the most part sans some pretty normal sign placement somewhat unobtrusive, it doesn't feel like this is PC Manufacturer con now it just feels like another thing that happens to be at the event. Secondly, this gives attendees more hands-on interaction with the thing being sold, and the number of times I have observed people leave one of these areas and ask a staff member what kind of PC, or keyboard, or headset was used at the Freeplay is not insignificant. The authenticity of the interaction is in that exchange, in a non-pressure environment you are able to try a product, no one is trying to actively convince you to purchase it or even throwing a logo in your face it just exists as texture to the rest of the convention experience. However, the context is also key here because it can define intent.

The nuance of all of this is the difference in how an event may feel to people attending it and striking the balance between something that feels community first and community driven while still giving plenty of space and share of voice to sponsors is a delicate process. Event organizers, usually smaller teams within these much larger events companies or within larger corporations that put on their own events tend to define the way that balance looks and feels. Businesses rely on the engagement of fans as a metric of success, the number of images shared on social media, number of retweets on the sponsored giveaway, or meticulously calculating foot traffic through a booth to quantify success. Meanwhile for those closest to the event in its actual execution there is a real sense of creating the best possible experience for attendees. Things can get strange, when a brand gets too hands on, especially a "non-endemic" brand[7]. Non-endemics are a much more difficult proposition in that regard and are often where an event can start to feel a bit overly corporatized. Up to this point in our example I have presented mostly theoretical examples of more endemic brands, for a PC manufacturer it is an easy fit to find some way to help out at an event and mesh into the wider fabric of the co, but non-endemic brands tend to have issues.

For instance at a gaming convention you scan the sea of booths and areas often marked off with simple pipe and drape barriers only to see an entire quadrant of the convention center plastered in the logo of a spice company. Where most other booths are designed to sort of fit in, darker color palettes, sleek construction, the spice company has just launched its summer marketing campaign, their marketing department insisted they stick to brand guidelines for the campaign. The area is carpeted in astro turf and a decidedly bright yellow color scheme. In an effort for "authenticity" the organizers have pushed this brand into sponsoring an area where people can walk up and play games, but the brand required that every PC monitor be topped with a sign reading "brought to you exclusively by spice". This is increasingly common. The desire of the sponsor is to extract value and ROI from the event by

way of advertising and reaching a demographic or subgroup that it often has trouble marketing directly to – the event company selling the event as an affinity portal to once again reach the "Wealthy Millennial", or increasingly the "Zoomer" demographic.

The goals of the individuals organizing the event from a corporate standpoint may be to put on a good show that serves their community, the overarching goal of the parent organization is ever expanding profit as is the nature of a for profit venture. But the ability to sell to those larger brands hinges on fans having fun and wanting to come to your event. And so in much the same way as the gamer chair word of mouth spread from streamers, so too does the enthusiasm of attendees, the week-long social media feed within fandoms where you will probably see at least one person if not more posting from a large event plants the seed that maybe that small local convention you have been going to isn't enough that you need to make the pilgrimage to the bigger, better, branded event. This of course mimics the reverence held for something like a San Diego Comic-Con or Anime Expo within fandom, the idea of wanting to go to "the original" event, the one specific to your interest. And in the spirit of that many corporate entities and events companies have gone about acquiring successful events to then grow them and make them ideal affinity portals to brands. This happened a lot during the pandemic, the financial pressure put on nonprofits and small organizations by not having an in-person event for two years created an opportunity for the larger corporate entities to bail the smaller shows out, often still featuring said non-profits as featured partners or consultants (Gale 2023). This also of course in the reboot post pandemic did result in the closure of some "underperforming" events in the corporate catalogs. With profit as a motivator it becomes much more than just the "break even" mentality of nonprofit organizations or smaller shows to an ideal of maximizing profits which often means selling the audience, sound familiar?

CONCLUSION: WHOSE INTERESTS DO WE SERVE?

As practitioners whose business it is to know culture and to guide others in understanding it, it is important to understand what the knowledge we are producing is being used for. Oftentimes the key questions from clients in pursuing any affinity portal can be summarized as "how do I fit in with this group, how do I make them like me?" but the intent, the directive from above is "how can I extract value from this new thing I don't understand?" It is never really about understanding the people at an event or the event itself, it is about moving into unclaimed territory to find new riches. That is why the pursuit of authenticity in marketing has always confused me and has remained something I push back against. Because authenticity is the furthest thing from what brands strive for in reality.

In some cases, authenticity means actively shaping the culture, in others it means owning the venue where cultural events occur and by extension owning the audience

as a commodity to be sold. More than anything, authenticity exists as a way to romanticize the notion of driving consumerism but in a "fun and naturalistic way". Yet the term has dominated the vernacular of marketing especially in spaces that touch the digital. We can consider the cult of authenticity as the pursuit of control of the narrative, dictation of culture and practice in much the same way as "gamer" aesthetics and branding still dominate the home PC space. Many variations have since emerged to meet different niches and aesthetic sensibilities; but the baseline was set by brands filling a space that had not been fully codified with an authentic article. Manufacturing this kind of authenticity is easier than ever as influencer culture pressures individuals to monetize every interaction as we reduce writing, art, video, and even games to "content" to be commodified with more space to put yet more ads. But much like the conventions and events discussed here, human interactions keep happening. To quote a participant in a study about the way a booth was designed, *"I dunno, I'm mostly here to hang out with my friends, so I wasn't really paying attention to every booth…"* Despite the capitalist hellscape we live in where companies are always trying to sell people something or finding new ways to monetize our existence, we can forget that the bits and pieces of a given culture that make it so appealing to commodify for brands are the pieces that don't need brand influence to function. Alongside every expensive gamer chair are still the folding chairs, office chairs, and dining room chairs. Beside every corporate megabooth there are small indie booths, you can still find small local conventions run by nonprofits, despite the corporate shows being more visible. At either end of that spectrum the purpose of the event is still bringing people together in a common interest.

In reality authenticity is something felt by individuals in an interaction and in the case of fandom, for better or for worse it is a feeling of legitimacy within the space. A company can throw as much advertising as they want at something only to have it ridiculed online, a spectacle meant to impress in an expo hall may just end up with people rolling their eyes. But to one degree or another to those who only care about the level of engagement that thing is getting the PT Barnum adage holds true, any press is good press. What we can hope to accomplish as ethnographers, is to plant a seed of legitimate interest in something with our stakeholders. An interest that goes beyond simply "how do I get these people to pay me" and truly brings someone around to the paradigm of "how do I help out and not make this about me?" And when that idea takes hold, nothing could be more authentic.

ABOUT THE AUTHORS

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NOTES

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1. Barbara Stern was a professor of Marketing at Rutgers University known for making a career of firsts in the market research world. Her work was often defined by a usage of literary criticism in consumer behavior and advertising that drastically shifted paradigms in her field. More info at https://www.gc.cuny.edu/news/proud-be-first-barbara-b-stern-was-first-woman-receive-doctorate-graduate-center

2. For more on WorldCon there is a good bit of scattered history including the original NY Times Article (https://web.archive.org/web/20110312100633/http:/www.time.com/time/magazine/article/0,9171,761661-2,00.html) Covering the con as well as a few issues of the Fanzine *Mimosa* (http://www.jophan.org/mimosa/m29/kyle.htm, https://web.archive.org/web/20080401064731/http:/jophan.org/mimosa/m21/kyle.htm) which has the unique position of hosting quite a few people with direct connections to the event. Andrew Liptak's *Cosplay: A History* covers some of the elements of costuming at the event. Cited in this work the fantastic oral history collected by Mathew Klickstein *See You at San Diego: An Oral History of Comic-Con, Fandom, and the Triumph of Geek Culture* also touches in depth on that first WorldCon.

3. These articles cropped up everywhere in the period of 2015-2018 including the infamous Avocado Toast Article: https://www.washingtonpost.com/news/food/wp/2017/05/15/dont-mess-with-millennials-avocado-toast-the-internet-fires-back-at-a-millionaire/ Articles on student loan debt: https://www.bloomberg.com/news/articles/2017-07-17/student-debt-is-hurting-millennial-homeownership The Economy: https://www.theatlantic.com/ideas/archive/2018/12/stop-blaming-millennials-killing-economy/577408/

4. A Full review of this chair can be found at: http://www.atpm.com/5.03/intensor.shtml preserved in perfect integrity, the reviewer reports "The chair also tends to build up a lot of static electricity. My fiancée refuses to kiss me while I am sitting on the chair because she gets a very strong buzz every time. The worst part about the chair is its comfort. I had horrible back pain after the first two days of using it."

5. LAN (Local Area Network) Parties are a type of play involving multiple computers set up in one location on a local network thus requiring copresence, venues have included and still do include basements, garages, dining rooms, and whole convention centers.

6. Blind boxes are boxes full of miscellaneous gaming or pop culture related merchandise often purchased for a flat price but having varying qualities of goods inside.

7. Within fandom and gaming spaces, non-endemic brand is the term widely used in industry to refer to brands that don't necessarily have a good reason to be at an event other than for marketing purposes.

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Intergenerational Living

Thai Cultural Frictions and Taboos in Changing Times

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As extended families grow in number, property development in Thailand increasingly focuses on single-family homes. Our client, Magnolias Quality Development Corporation (MQDC), has introduced a new property brand centered on intergenerational living, embracing the Thai traditional concept of "Katanyu," gratitude. While the benefits of such living arrangements are widely discussed, there is limited information on the associated challenges due to their taboo nature.

These research projects were initiated to understand how family members coexist under one roof while maintaining their relationships, following Thai reciprocity norms. The findings reveal that intergenerational households face complex dynamics in family relationships and living spaces. These dynamics are influenced by shifting financial power and the evolving lifestyles of the younger generation. We also seek to explore how thoughtful space design can alleviate tensions within the family, fostering harmony among intergenerational families who embrace the Katanyu concept.

INTRODUCTION

This article, based on a series of privately commissioned qualitative research studies, informs the design of future dwellings for intergenerational families by exploring the spatial needs of different generations living under one roof, on the same piece of land, or in proximity.

As a follow up to a foundational project on a property development in a Bangkok suburb, our applied ethnographic research led to an emerging typology of home seekers that were looking for a cluster of homes where multi-families with the same grandparents would live together in one property. The findings led to the launch of a new property brand with a strategic position for intergenerational living solutions targeting mature, affluent home seekers.

Our client believes in the value of intergenerational family living and the Thai traditional concept of "Katanyu," which emphasizes gratitude. They are developing a project to support intergenerational family living, recognizing that living in such a scenario allows the younger generation to learn from the elders through their life experiences and ensures that the elders are not lonely as they will be surrounded by their loved ones. While the benefits of intergenerational living are commonly discussed, little information is available on the challenges, due to the taboo nature of expressing "Akantanyu," or ingratitude. The concept of Katanyu and the cultural and historical context of intergenerational living in Thai culture are discussed in this paper, which consists of two key friction points.

- While intergenerational living is prominent in Thailand, very little is discussed about family dynamics and friction points in these living arrangements because of cultural taboos related to discussing these challenges publicly.
- While intergenerational living is a traditional practice, family dynamics are changing as a result of Thailand's "evolving social and economic landscape."

These projects were negotiations of the friction between traditional values and social change in Thailand from both methodologies and findings.

SOCIO-CULTURAL CONTEXT OF INTERGENERATIONAL LIVING

House differences can be categorized by cultures and meanings, as the concept of home is also related to cultural context (Pink, 2017). In Thai culture, it is believed that grown-up sons or daughters must take care of their parents, and this care can be reciprocated in various ways. The foundation of Katanyu thinking originated in Thai-Buddhist ideology. This perspective is reflected in Buddhist narratives and stories (Phrahruthammasarnkosol and Suwanprateep, 2019). One of the key beliefs in Buddhism is *karma*, which is the law of cause and effect. According to this rule, individuals who do good deeds will receive good consequences, while those who do bad deeds will face negative consequences (Pinchuyon & Gray, 1997).

The concept of Katanyu or gratitude, holds great significance in Thai-Buddhist culture. Gratitude can range from feelings of thankfulness to a sense of obligation to reciprocate. (Walaiporn Nantsupawat, 2010; Facts and Details 2014; Roobe 2011). Thai parents have expectations that their children will grow up to be virtuous individuals who abide by traditions, prioritize their education, and perform good deeds. In accordance with Buddhist teachings, children are obliged to care for their parents in their old age.

Similar to other Asian societies, Thais maintain strong bonds with their families, which permeate all aspects of their lives. In the context of Thai society, it is common for individuals adhering to the Buddhist faith to live with their family during their university education, and this practice sometimes extends beyond graduation (Choowattanapakorn 1998). This is caused by the Katanyu concept, which expects offspring to repay their parents by living with them. Thais hold immense appreciation for their parents' upbringing and care, which leads them to feel obligated to repay their parents as adults. This entails prioritizing their parents' wishes over those of their spouse or partner, if necessary. Privacy and personal space are of little importance in Thai households, as family members often live together under one roof, sometimes sharing a single bedroom. Unlike Westerners, Thais embrace physical closeness and derive joy from it.

The general idea of reciprocity in the family is universal; it is often called the "generational contract." This contract is widely understood, stating that families have a responsibility to care for their vulnerable members, such as the elderly, children, and the sick. Therefore, it becomes the duty of the younger generation to care for

their parents or other elderly family members by providing them with a common standard of living (Haberlein, 2015).

Traditionally, multiple generations living together in the same household have been a common practice, fostering close-knit family ties. Intergenerational living allows for the passing down of wisdom, cultural traditions, and values from older generations to younger ones. It embodies the principle of filial piety, where children are expected to care for and support their parents in their old age. The practice also strengthens social cohesion, as it promotes a sense of collective responsibility and shared resources within the extended family. Moreover, intergenerational living provides a support system for the elderly, ensuring their well-being and reducing feelings of isolation.

In Thai cultural norms, taking care of elderly parents is a given, and the idea of placing them in nursing homes, which are not prevalent in Thailand, is rarely entertained. It is expected that children will willingly care for their aging parents, without feeling inconvenienced by it. In fact, family support may be different from the past, this is due to the fact that many children nowadays may have conflict with this norm (Choowattanapakorn 1998).

Mauss (2000) proposed that reciprocity, as outlined in his theory on gifts and exchanges, is linked to the socio-economic context, and people perform it not as individuals but as members of collective society. Katanyu concept in Thai culture also involves some rapid changes; transformations in social and economic conditions have led to a shift in Thai values compared to the past. Family members focus more on providing for their immediate family's needs, as the value of currency holds significant importance in the lives of Thai people. Some individuals now prioritize material possessions as the key to happiness, resulting in a greater emphasis on earning money rather than spending time with their children. This shift has limited opportunities for moral and ethical teaching.

Additionally, misunderstandings have arisen regarding the concepts of gratitude and reciprocation of kindness. Some individuals mistakenly believe that parents fulfill their duties out of obligation without truly understanding the importance of gratitude and the need to reciprocate. This misunderstanding leads to a lack of appreciation and a failure to compensate those who have shown kindness.

BUSINESS CHALLENGES

The real estate market in Bangkok is undergoing heightened competition due to the rapid urbanization and expansion of the city, accompanied by a substantial surge in urban residents. The prevalent trend in housing development leans towards the establishment of housing estates, shophouses, informal settlements, dormitories, and condominiums, forming the general landscape of settlements in Bangkok (Julayanont & Ratanawaraha, 2020). Notably, housing estates and luxury apartments, as well as condominiums, are on the rise. According to a report from a Thai real estate

research firm, the proportion of new condominiums has escalated by 85% compared to the previous year, while housing projects have seen a 48% increase from the previous year (Thansettakij, 2023). However, the dimensions of condominium units are primarily tailored for one to two individuals (Julayanont & Ratanawaraha, 2020), which contradicts the traditional living arrangements of Southeast Asians, who often reside as extended families under the same roof.

Our client's typical development process normally includes research on properties in the existing market to compare the advantages of location, property sizes, additional services and facilities, parking space, levels of privacy, and price. To develop new products tailored to intergenerational living, they needed to understand the lifestyle of the affluent intergenerational family to inform land acquisition, space design, programming, services, and marketing communication. However, existing information on intergenerational living was more focused on statistical or moral aspects. For example, Tantasavasdi and Inprom (2019) conducted a survey of 200 people who live in multigenerational homes using an architectural approach and method for designing future house estates. Hence, there is a lack of ethnographic information on intergenerational living among the wealthy. To be specific, the information pertained to private architectural practice; there were no precedents for researching commercial buildings.

The mentioned problems prompted our clients to seek an understanding of Thai intergenerational families before they develop residential products. These led to our research to explore Thai cultural concepts which influence intergenerational family dynamics.

RESEARCH METHODOLOGY

The methodologies chosen were aimed at addressing the first friction point: "While intergenerational living is prominent in Thailand, very little is discussed about family dynamics and friction points in these living arrangements because of cultural taboos related to discussing these challenges publicly".

The traditional group discussion method was challenged due to the taboo nature of expressing Akantanyu, or ingratitude. And Thai people have a fear of bringing dishonor and losing face for their family. They believe that sharing family problems with outsiders may amplify the shame. They have learned to conceal emotions and avoid openly expressing their feelings and thoughts to others, which is influenced by Buddhism's teaching of the importance of being non-expressive.

However, the role of researcher is to assemble both of these approaches (Pink et al. 2017). This study's aim was to understand how intergenerational family members live together and customize their living spaces, both within commercial property developments and through custom-built homes. The two main methods employed were ethnographic interviews and co-creation.

Ethnographic Interviews

Ethnographic interviews involved researchers conducting interviews with a total of 39 families (consisting of 72 individuals across generations) and visiting 23 homes of Thai families, both physically and virtually. Data was collected in the form of videos, still images, and filled-out worksheets. Decision-makers and/or members of different generations were interviewed together to observe their interactions. Additionally, separate interviews were conducted to understand different perspectives and to avoid culturally sensitive topics related to family relationships and conflicts.

Conducting interviews in the participants' personal or private spaces helped create a comfortable environment for them to freely express their emotions. Researchers also used environmental cues to elicit stories that may have otherwise been omitted. During in-home visits, participants were asked to give a tour of their personal and shared spaces and to share stories and experiences related to the following topics:

- Family history
- Individual roles and responsibilities
- Family structure and relationships between family members
- Evolution of their homes
- Usage and experiences within different spaces

Co-creation

Co-creation involved using creative exercises to understand how participants would negotiate living arrangements if they had the opportunity to build a new home and live together. These generative exercises allowed them to address underlying tensions that may be sensitive to discuss directly.

Generative brainstorming sessions were conducted during in-depth interviews, utilizing paper models and miniature furniture, to generate hypothetical housing configurations. The main decision-makers and/or a collaboration of family members were asked to imagine spaces and layouts that would support their intergenerational living, including considerations for the following topics:

- home structure, plot of land and location
- spaces within the home (personal spaces, common spaces, reception spaces)
- plans for future adaptations.

With both methods, researchers were able to understand family dynamics both explicitly through storytelling and implicitly through observations of spaces and the ideal home. The results were then used to create conceptual space solutions as well as marketing and communication strategies related to intergenerational living in future property development projects.

RESEARCH ANALYSIS

The research findings revealed key factors that led to the second friction point: while intergenerational living is a traditional practice, family dynamics are changing as a result of Thailand's "evolving social and economic landscape."

In the past, intergenerational family living provided emotional and economic advantages and embraced established roles that upheld the principle of Katanyu, emphasizing the emotional value of respecting elders and governing the hierarchical structure within families. However, contemporary intergenerational families face the challenge of balancing emotional and economic benefits due to evolving dynamics caused by five emerging factors.

Factor 1: Change in Power Dynamics within the Family

Frictions among family members are inevitable in intergenerational households as the power dynamic within the family hierarchy is challenged. Thai culture teaches to respect elders, with the older generation holding the highest respect, while the middle or younger generations possess economic power. This often causes friction due to differing needs. While the hierarchy in family tradition influences the power structure within the household, intergenerational households experience competing economic powers.

> "For housewives, they have their own way of managing their family, personal tastes, or lifestyles, so space for two housewives in the home have to be separated to make them both feel comfortable. I think they should be separated, not put together."- Jeed, 47 years old

> "I am the person who takes care of all other household expenses. Sometimes my mother-in-law would contribute or share the grocery costs, but Nan always pays more for the food." - Nan's mom, 57 years old

> "My daughter-in-law gave me 5,000 baht per month, I use it for grocery shopping and keep the change as pocket money. So, when the food expense is not enough, I would use my pocket money to pay. For example, "This month is 2,000 baht beyond the budget." – Pam's mother-in-law, 59 years old

Factor 2: Differences in Lifestyles due to Generational Gap

The lifestyle of younger generations is influenced by urbanization and city modernization, which presents challenges in spending quality time together within intergenerational households in Bangkok. Busy schedules and traffic congestion limit interactions, allowing only brief moments of connection in the early morning or evening. Shared activities among household members are rare, as individual interests are not always aligned. Although they may physically coexist in the same space, each member often engages in their own activities. Lack of meaningful time spending

together and disagreement with the elders can be viewed as unappreciative to the family.

Frictions also arises within intergenerational households due to micromanaging personalities and differing personal behaviors of elders. The significant age gap between generations contributes to varying perspectives on life. The middle generation often assumes the role of mediators, as they can understand the perspectives of both older generations and younger generations. The sources of friction related to the age gap are differences in personal manners, work ethics, and time spent at home.

> "My grandma is older than my daughter, around 60 years old, so they have a different mindset. She must understand that my daughter wants to sleep until noon on the weekend, but her granny doesn't understand. I always told my kid to just say 'yes'."- Whiteblue, 53 years old

> "I always told my mom that a wise elder shouldn't intervene in a kid's life. I told her this so she wouldn't complain to my daughter. Her job is to prepare food, but sometimes she's too involved. This is different from her generation."- June's mom, 62 years old

> "When my mom saw her niece using an iPad, it would irritate her. It's like everyone doesn't want to talk to her and is instead chatting with a metal board." – Whiteblue's sister, retirement age

Factor 3: Lack of Personal Space and Growing Desire for Privacy

Territorial issues among members of intergenerational families are another cause of friction because household members don't always desire constant presence with one another. These territorial frictions result in a desire for more personal space, privacy, control over acoustic disturbances, and control of personal belongings.

Sharing bedrooms is common in intergenerational households. In some cases, siblings of the same gender are assigned to share a bedroom when there are not enough private bedrooms for everyone. Elderly individuals or frail seniors sleep with another household member or a maid to monitor their well-being and in case of emergencies. Most families may have separate bedrooms designated for their children, especially if the home was acquired after the children were born.

Ownership of private bedrooms changes over time based on the current needs of the household. When available, private bedrooms are given to teenagers and adults to provide personal spaces. Most private rooms are equipped with a TV and occasionally a refrigerator; however, this is viewed as a cause of isolation. Private bedrooms may also be shared when there are visiting guests.

> "There are some privacy issues. About 3-4 years ago, when I was studying, my older sister, who I respect as my mom, was very concerned about me, and wanted to know what I was up to. Whenever I was in my room in the evening, she would come to check

on me. As an adult at that time, I needed privacy. I decided to tell her that she shouldn't invade my privacy. My grandma was there, and she said my mom was just worried about me. Now, it's better." – Mob, 26, years old

Factor 4: Misalignment in the Distillation of Tradition

Intergenerational homes serve as a way to pass on traditions as older or middle generations provide for the home, which can be passed down to future generations. However, in recent times, younger generations prioritize their own personal lives and sometimes perceive it as a burden.

Intergenerational homes have a lifespan of roughly one generation, approximately 20-30 years. In most cases, middle generations are the direct heirs, favorite children, or the last ones residing in the house, such as the first son, only daughter, or unmarried children.

Homeowners plan to live in their homes until their children are grown. However, they do not know if their children will continue living in the same home they grew up in or if they will live in an intergenerational household at all.

During our exercise, adult younger generations were often designated as the individuals to design the new home, as they might be the potential future heads of the household. However, they tended to keep the same arrangements for the new house, as they might choose to move out completely. Meanwhile, middle generations were concerned about the well-being of older generations and wanted to be prepared for their elderly years. They considered the near future and how the assets would be divided.

Kaew's Story

Kaew (older generation)'s family used to live in a big family including three generations who resided together. After Kaew bought a commercial row house in the city as place for residence and business, his first son, Own (middle generation) and his family moved in. The younger son of Kaew (middle generation) moved to another house, but he asked Kaew to accommodate his two children in their home due to its proximity to their school.

World, Kaew's grandson and his dad, Own, always had arguments because his dad wanted him to join the family business, but he decided to work with another company. So, World and his brother are closer to their mom. Would and Kaew primarily talk together only during breakfast.

Kaew and Own want to move to a detached house because they don't want to deal with stairs when they are older. However, they are uncertain if they will continue living together in a multigenerational household. World wants to move out and have its own apartment. He doesn't want to be involved in the family business.

Factor 5: Tensions from Shared Ownership of the Property

Intergenerational homeowners buy or build their own homes out of necessity or when they are ready to establish themselves as heads of the household. Since intergenerational homes are often owned by the older generation or co-owned by other members who do not reside in the home, middle and younger generation members must gain permission before renovating, expanding, or rebuilding on the same land. Shared ownership of property creates inflexibility for the middle and younger generations to grow.

When the intergenerational home has served its purpose for the family living in it, the decision to retire the intergenerational home rests with the youngest generation, who are now adults. They must decide about what to do with the intergenerational home after obtaining the blessing of the original owner (middle or younger generations) and reaching a consensus with other younger siblings. Common solutions to resolve differing opinions include selling, renting out, or leaving the property vacant.

> "Our family received the land as a royal grant because our ancestors belonged to the noble class (in the past). We still own it as it cannot be divided and sold. Every family member must sign before we can make any changes to it. So, we all stay in this home as a very big family. My parents, two uncles, and two families from two grandfathers in the younger generation. Apart from our house, there is an apartment where we all divide rental income equally."-Tong, 41 years old

> "I was forced to leave my home because my grandparents had many children and grandchildren and one of the children wanted to take possession. The home is located in the city and has a nice location, so it had a good value. They were concerned that if my siblings stayed there too long, we would live there forever. So, they wanted me out, and I had to find somewhere else to live." – Sam, 52 years old

These five emerging factors challenged the fit of conventional property developments that design based only on number of the bedrooms, size, and facility. To continue with tradition, home is the space of negotiation that empowers the head of the household's autonomy and flexibility and accommodates the different lifestyles of different generations while providing spaces that support their desired interactions.

DESIGN IMPLICATIONS

Criteria for product development

The market currently lacks pre-built homes designed specifically for intergenerational living. Most intergenerational homes are custom-designed or renovated homes to fit their needs. Instead of designing homes based solely on the

number of household members, the concept of intergenerational homes should focus on fostering interactions between household members while reducing tensions and optimizing for longer lifespans. A home design for Intergenerational living may not solve relationship problems, however, we hope that the space design can help alleviate some while enhancing the interaction. The following are design principles for an intergenerational home:

Various types of home that match family dynamics

Our research identifies three typologies of homes, defined by the way household members live, the family lineages, their family relationship and how they to negotiate and balance traditional values with their privacy space.

- **Type 1: Single-Lineage Intergenerational Home** which consists of members from one paternal or maternal family line, without any siblings or extended family members. However, it serves as the center of an extended family. They often live in a household with unmarried siblings, and most members stay at home. They prefer a large home with an open layout that facilitates shared activities in one area. They want everyone's presence to be felt. The head of household has autonomy in their home, though they may receive financial support from older generations. This type of home represents how home intertwines with Thai family values, particularly in the case of close-knit families. This makes them want to live together as a family rather than being alone, especially the members who have not entered marriage.
- **Type 2: Multi-Lineage Conjoined Intergenerational Home** which consists of members from two family lineages from the same family tree living in separate homes or a group of homes on the same plot of land with shared land or real estate assets. Family members compromise the family value by balancing both personal and family time, but they prioritize family gatherings at specific times. Members of this group prefer a layout that provides buffers, such as different wings or zoning based on generation or sub-family. These help them separate themselves from other members of the family when they need to.
- **Type 3: Neighboring Multi-Lineal Intergenerational Home** which consists of members from two or more family lineages living as neighbors who want to maintain family bonds while maintaining their independence in separate houses and plots of land. This type of home reflects how people negotiate the value of their home by separating it. Neighboring Multi-Lineal households prefer clear separation between each sub-family's territory, and these conjoined homes can either be under one roof or adjacent homes, they

also desire autonomy in their living spaces and do not want to interfere in the affairs of other household members.

Space design that strategically encourage interactions while allow for control of privacy with shared amenities and good organizational system.

A well-designed living space should encourage spontaneous interactions among family members, allow individuals to share the same space while maintaining their own territories, or offering acoustic separation if needed.

Additionally, the space should be able to accommodate extended family members and friends by providing areas for family shrines with good ventilation, large family and friend gathering space and offer space for overnight stays by extended family guests. Flexibility in space usage is key to fulfilling these requirements. For example, round tables in intergenerational homes, particularly for meals. These spaces can be designed as pop-up tables that can be hidden or folded when not in use, freeing up the area for other activities.

Shared amenities can play a crucial role in intergenerational homes to accommodate the lack of space and facilitate household chores. Observations have shown that shared bathrooms among members of the same gender, resembling dormitory-style bathrooms, can be effective. For example, separating the private showering area from the sink allows one person to brush their teeth while another is showering. Additionally, incorporating a shared closet provides an additional storage option for anyone whose personal closet is insufficient.

Intergenerational homes often accumulate gifts and personal belongings that may be shared with extended family members or elders. A well-designed home organizational system and ample storage solutions can help manage and store these items effectively.

Adaptable structure that accommodates changes of family composition and/or health condition

Space utilization in intergenerational homes is often unpredictable, leading to the repurposing of various areas based on immediate needs. Changes in the health of household members, such as frailty, sickness, or disability, as well as the addition of new members like newborns, siblings of middle generations, or younger generations who move back in, may require renovations and structural changes. This could involve altering layouts, installing lifts, wheelchair ramps, rails, or sliding doors when repurposing alone is not sufficient. This can be achieved through flexible structures, adaptable staging of spaces, or services that enable customization over time.

Property location that supports existing and future lifestyles of all generations

When selecting the location for intergenerational homes, it is crucial to optimize it for the needs of all generations. Given the traffic conditions in Bangkok,

intergenerational households are often formed or sustained due to the proximity and convenience to routine activities such as work, school, or extended family members. Considerations for location may include proximity to hospitals and communities for older generations, convenience to work and social activities for middle generations, and convenience to work or school for younger generations.

CRITERIA FOR MARKETING & COMMUNICATION

While our client focuses its communication on the value of Katanyu, we found that it may not resonate with potential homebuyers who understand the intricacies and challenges of intergenerational living.

The research helps them understand the reality and enables them to visualize themselves in the homes they develop. The visual communication shows home design features and interior spaces that are unique to intergenerational living i.e a cluster home designed with corridor to connect two homes, large dining spaces that accommodate different generations and extended family.

The key message could emphasize how multigenerational living connects their family's past to the future. The aim is to communicate the emotional and economic benefits while providing guidance through the challenges. The team explored potential pre-launch activities such as panel talks with celebrities who live intergenerationally, engagement with academic scholars, and experiential marketing initiatives like short films or TV series about three-generation living. Another idea is to create experiential spaces where intergenerational families can spend time together, such as public parks.

The target audience for marketing efforts includes primary homeowners who are middle generations, with teen and adult younger generations living in conventional intergenerational households. The message may focus on supporting intergenerational households in transition due to social or economic factors by promoting relationships where all generations benefit beyond the value of Katanyu. Additionally, providing a support system for intergenerational families who may not live together but continuously support each other socially and economically can serve as an example and provide guidance in navigating the challenges of intergenerational living.

CONCLUSION

Urbanization and modernization have brought changes to the Thai lifestyle and have posed challenges to traditional family values, leading to frictions within intergenerational living arrangements. These frictions arise from factors such as changes in power dynamics, differences in lifestyles due to generational gaps, the lack of personal space and growing desire for privacy, tensions arising from shared property ownership, and misalignment in the distillation of tradition.

While these frictions may not be resolved, the design of the home and its spaces can help reduce and better manage them. Given the limited number of property development projects that address these issues in the market, this provides an opportunity for our real estate development client to offer solutions that resonate better with their potential target audience.

From an organizational perspective, the adoption of ethnographic research offers significant advantages for developers and marketing teams as it bridges the gap between them and their potential customers. It's noteworthy that ethnography is not widely understood or extensively utilized in Thai market research due to the longer duration of data collection and analysis process. Throughout our interactions, our client has embraced more customer engagement and creativity in their development process in many projects. Research findings and user stories from research were still referred by different teams within the organization as they continue to develop intergenerational living solutions.

These projects have another beneficial aspect by engaging with the current societal issue. Recent trend of luxury real estate ventures and governmental organizations have focus on homes for the elderly. These projects typically highlight the value of physical and mental wellness for aged residents. This is perhaps to be expected in the context of society like Thailand, which has a strict protocol for care of the elderly (Chatphiraya, 2022). On the contrary, our client has alternative ideas for engaging with the family market by developing homes for extended families which include mixed generations. Our client's project offer the first Super-Luxury Residence designed to support both traditional and the changing needs of Thai families. Likewise, it shows that there are still urban residents who desire to live in the city with the whole family while keeping their private space (TERRABKK, 2022).

ABOUT THE AUTHORS

Adisorn is founder of Teak Research, possesses 20+ years of global experience in human-centered design and innovation. He collaborates with clients across industries, handling projects involving new product and service design, communication design, and business strategy. He e arned his master's in human-centered design from the IIT Institute of Design in the USA.

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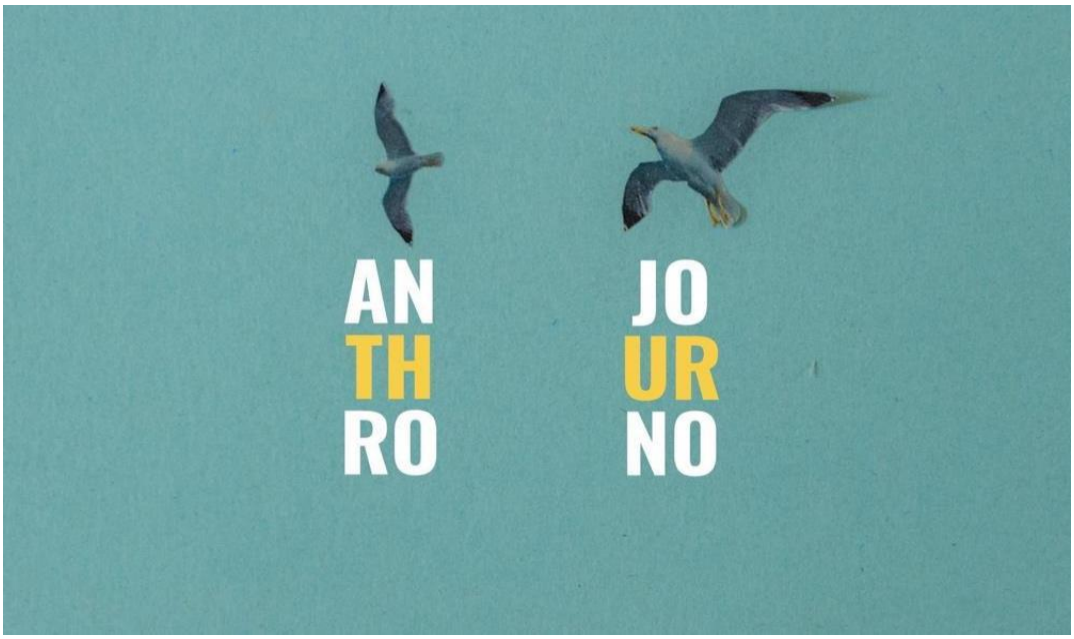
Anthro x Journo

The Value of Ethnography for Solving Journalism's Challenges

EMILY KENNEDY, AnthroJourno.org



Photograph by Emily Kennedy.

Today's working journalists are experiencing friction in stereo: both readers and sources don't trust them to get the story right. This friction between media and the communities they cover has always existed, but today's turbo-charged antagonism has brought this to a personal level for modern journalists just trying to do their jobs. For our democratic society to thrive, we need journalism in top form. In this presentation, trained anthropologist and magazine editor, Emily Kennedy, will show how journalism and ethnography are close kin. With audience members already familiar with ethnographic methods, this Pecha Kucha turns our focus to the creative opportunities ethnography presents for solving some of journalism's modern challenges. Let's spark creative thinking around applying anthropology to a sister discipline in need!

Emily Kennedy is a trained anthropologist and has worked as a journalist and magazine editor for over 10 years in North America and Australasia. Her research around anthropology and journalism led to the creation of anthrojourno.org -- an online resource for journalists looking to use ethnographic methods in their reporting. ecskennedy@gmail.com

Positive Friction: Creating Movement and Progress

Engaging and embracing the productive and generative force of friction creates spaces and opportunities for greater intention in our actions, more ethical outcomes, and novel pathways forward.

Discussant: Karl Mendonca, *Design Research & Strategy, Google*

Friction by Machine

How to Slow Down Reasoning with Computational Methods

ANDERS KOED MADSEN, Techno-Anthropology Lab
ANDERS KRISTIAN MUNK, Techno-Anthropology Lab
JOHAN IRVING SØLTOFT, Techno-Anthropology Lab

This paper provides a theoretical alternative to the prevailing perception of machine learning as synonymous with speed and efficiency. Inspired by ethnographic fieldwork and grounded in pragmatist philosophy, we introduce the concept of "data friction" as the situation when encounters between held beliefs and data patterns possess the potential to stimulate innovative thinking. Contrary to the conventional connotations of "speed" and "control," we argue that computational methods can generate a productive dissonance, thereby fostering slower and more reflective practices within organizations. Drawing on a decade of experience in participatory data design and data sprints, we present a typology of data frictions and outline three ways in which algorithmic techniques within data science can be reimagined as "friction machines". We illustrate these theoretical points through a dive into three case studies conducted with applied anthropologist in the movie industry, urban planning, and research.

Keywords: Digital Methods, Machine Anthropology, Pragmatism, Innovation, Friction

INTRODUCTION

One of the most prevalent imaginaries around machine learning is that it supports speed and efficiency (Kitchin, 2014a). From doctors being able to spot early signals of cancer to urban planners being able to steer transportation systems in real time, the dream of instantaneous machines is embedded in the exemplary use cases. In this paper we argue that this prevailing imaginary misses an important ethnographic affordance of machine learning techniques. Namely, their ability to create friction. Taking inspiration from ethnographic fieldwork and pragmatist philosophy, we define moments of friction as encounters between differences that hold the potential to creatively re-evaluate held beliefs and rearrange engrained conceptual schemes. Friction thus enables the form of 'sense of dissonance' that Stark (2011) has argued to be central to organizational innovation and creativity. When we argue that computational methods can spur this form of dissonance, we actively seek to decouple data and algorithmic techniques from connotations such as 'speed' and 'control' and illustrate their potential as tools that can also further an ethnographic interest in furthering slower and more reflexive practices in organizations. Our paper thus contributes to the recent debate concerning the ways in which AI should (or should not) be integrated in the toolkit of professional anthropologists. Recently Artz (2023) provided a speculative list of 10 ways that AI will disrupt anthropology. Although we are aligned with many of his arguments –

such as the need to think of AI as collaborative partner – our focus in this paper is more on the possibility to use computational methods to generate productive friction than their ability to reveal hidden cultural patterns.

Drawing on our 10 years of experience working with participatory data design (Jensen et al., 2021) and data sprints (Munk et al., 2019), we present a typology of data-frictions that each contribute to 'slowing down reasoning' (Stengers, 2018) in distinct ways. We first outline a conceptual framework around data frictions. We ground the concept in Agar's argument that the decision to engage in ethnographic fieldwork always involves putting your own point of view at risk (Agar, 2006). In fact, the insight that your own cultural frame of reference may not be sufficient to describe the world is what motivates fieldwork in the first place. We also take inspiration from the pragmatist theory of inquiry stemming from Charles Peirce (1878) and John Dewey (1929). Subscribing to a processual ontology both entertained the idea that relevant knowledge about the empirical world is produced in 'problematic situations' that in one way or another trouble existing classifications and habits of thinking. In other words, situations that create friction. We use the name 'machine anthropology' (Pedersen, 2023) to denote a specific type of humanistic data science that actively seeks to repurpose algorithmic techniques to produce such frictions.

We then exemplify the practice of machine anthropology across three cases where we have worked with applied anthropologists who found themselves enmeshed in two types of frictions while working with algorithms. One type is 'emic frictions' that challenge their empirical hypotheses. The other is 'etic frictions' that provoke wholly new ways of theoretically framing the problem at hand. In The Thick Machine (TTM) we invited ethnographers to compete with a neural network in interpreting the meaning of emoji reactions on Facebook. In the case of PUBLIKUM, we collaborated with Will&Agency (W&A), a consultancy, in using unsupervised algorithms to explore whether the movie scripts they develop with customers in the industry resonated with online discussions. In 'Do you live in a Bubble?' (DYLIAB) we worked with Gehl Architects to create cartographies of Copenhagen's political diversity through patterns in digital traces from Facebook users. As we will show below, these cases illustrate how both emic and etic machine friction have the potential to stimulate creative thinking and disrupt established beliefs, fostering new insights and perspectives.

We thus introduce the idea that algorithmic techniques from data science can be re-appropriated as 'friction machines' if they are liberated from specific quality-criteria associated with the framework of acceleration and control they are usually embedded in. With roots in the cases, we distinguish between three types of friction machines that each trouble a specific criterion in said frameworks. 'Algorithmic friction' thrives on mispredictions and thus troubles the idea that machine learning techniques should be evaluated on their *accuracy*. 'Visual friction' thrives on forcing the user to engage with data visualization in order to make sense of it. It thus

troubles the idea that data visualizations should ideally be *easy to interpret* and tell a *clear* and *unambiguous* story. 'Curated friction' thrives on the indeterminacy in operationalization and thus troubles the idea that the goal of data science is to *'mine'* and *represent* pre-existing structures in data. Rather data-work is a processual task of deciding how to perform such structures with the techniques at hand. We end the paper by linking the three types of friction machines back to David Stark's theory on the relations between dissonance and innovation.

WHAT IS DATA FRICTION?

There can be no ethnography without friction. It is fundamental to ethnographic methods that a translation takes place between two points of view and that this translation is fraught with the kind of pitfalls that result from ethnocentrically taking a specific framing of the world for granted (Agar, 2006). Friction, then, is what you get when you actively seek to unsettle those taken-for-granted assumptions through fieldwork. Hammersley and Atkinson (2019) talk about fieldwork as apprenticeship and seeking out a position as the acceptable novice. The moment you get too comfortable in your role – the moment it gets frictionless – fieldwork is no longer productive, and it is time to seek out a new position. A similar line of thought can be traced back to pragmatist philosophy and the argument that productive inquiry stems from so-called 'problematic situations' where existing classifications are misfits with empirical reality (Dewey, 1938). As the world changes, our conceptual schemes need adjustments. However, this is only possible with a certain amount of friction between existing schemes and the empirical world. As put by Peirce, you need an epistemic 'itch' that motivates further innovative inquiry and thus keeps you on your toes when it comes to adjusting your frame to an ever-changing environment (Peirce, 1877). While initially annoying, such itches are necessary in the production of knowledge. According to Stark (2011) they are also necessary for maintaining innovative and competitive organizations.

Taking further inspiration from ethnography we distinguish between what we will here refer to as *emic* and *etic* frictions. Emic friction is what occurs when you realize that you are a stranger to your field. It begins with the initial realization that your interlocutors live in a different frame and thus experience the world from a different point of view that makes translation necessary. The friction is between your own point of view and theirs. This is the itch that typically motivates the ethnography: it becomes clear that your way of seeing the world is not compatible with your interlocutors'. Fieldwork, then, is to a certain degree about seeking out opportunities to further increase this emic friction in order to learn from it. Etic friction, on the other hand, is when you realize that it is not enough to learn about your field but that you will have attune your own conceptual frame to grasp what you are dealing with. Any good ethnography, one could argue, involves some level of

iterative attunement between emic and etic frictions. This idea is represented in the first columns in figure 1 below.

Seen in this light, it is perhaps not surprising that the conventional narrative about data science as an accelerator for insights and vehicle of control can appear fundamentally incompatible with ethnography. Often marketed as tools to circumvent cumbersome theory and reduce friction, one can hardly blame anthropologists for harbouring a certain scepticism towards such techniques. One example is the imaginaries around the use of AI in creating the so-called smart city. Here, the selling point has been to model and track urban flows in *real time* and thereby reduce traffic jams and other infrastructural problems (Kitchin, 2014b). You could say that AI has been used to avoid the loss of efficiency in mechanical motion of objects moving through the city (Madsen et al, 2022). Similarly, machine learning in the film industry is often envisioned as a powerful tool to optimize box office success (Sharda & Delen, 2006), i.e., a way to ensure that time and resources are not wasted on movies that lack commercial potential. This could be dubbed the Hollywood-model of creative AI, but it is not necessarily creatively acceptable AI. Finally, we have seen large social media platforms taking advantage of people's digital traces to enable targeted news circulation in real time. We could call this the Cambridge Analytica approach to digital traces, but it is far from the only use one could have of such data.

The red thread across these three examples is that data and algorithms are used for optimizing processes towards reaching pre-defined goals. They speed up answers to established questions and the frames behind those questions are not up for scrutiny. For instance, the smart city's ambition to model the efficient flow of cars in the city is ultimately rooted in a conceptual model positioning the existence of a continuous geographical space (Madsen, 2023). Without this frame it would not make sense to model traffic in the ways it's done in smart city projects. However, in the smart city there is often no ambition to disturb that spatial frame. Rather, the aim is to find an efficient answer to the question concerning how to make cars move in said space (Halegoua, 2020). What is at stake is the empirical hypotheses derived from the spatial frame – not the frame itself. The search for solutions stays within the original 'point of view'. In the traditional framing of data science, data-friction is something to be avoided and we illustrate this approach in the middle column of figure 1 below. To continue the smart city illustration the epistemic itch here may be felt by a municipal traffic engineer whose point of view is that the good city is one that efficiently moves cars from A to B (PoV1) but fails to predict these car flows (epistemic itch). His solution is to invest in a combination of sensors and machine learning models that enables him to better predict the carpool (algo as revealing a pattern). This removes the itch, and the engineer returns safely to PoV1 without even having to encounter other point of view on the good city (poV2).

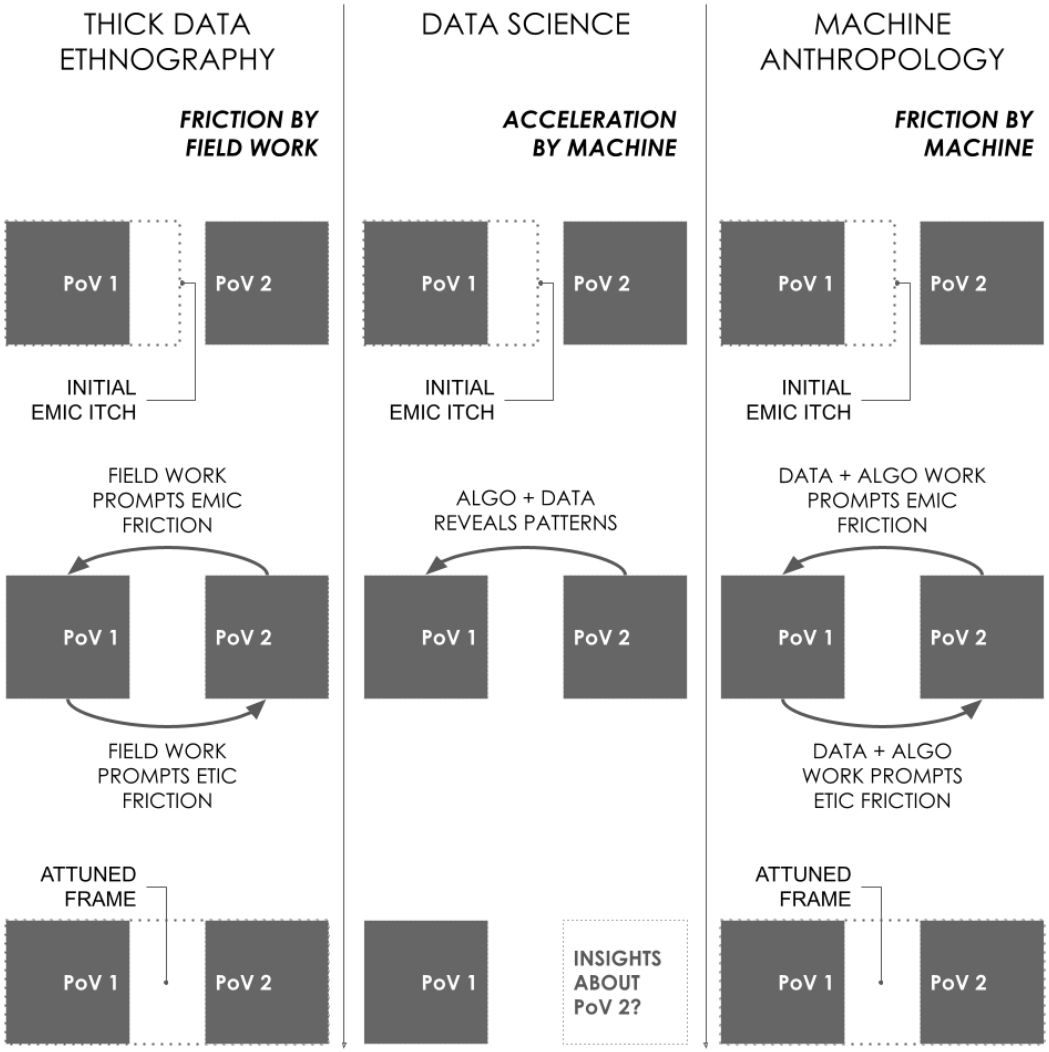


Figure 1. From the traditional model in ethnography, friction by fieldwork (left), to a computational model with similar goals, friction by machine (right). Both are fundamentally opposed to the data science paradigm, acceleration by machine (center), which pursues frictionless insights.

To the contrary, we propose that there is a way of working with data and algorithms that produce both emic and etic frictions (Figure 1, Right). A form of data science that does not see data frictions as problematic but rather as a potential instrumental for doing something ethnographic with data science methods. It is an approach to data science that actively seeks to foster moments where algorithmic pattern-recognition makes different problem frames rub against each other and thus stimulate the same form of attunement as classic fieldwork does. Our suggestion is that we can be more innovative in our uses of data science techniques if we learn to re-appropriate algorithms as 'friction machines'. As techniques that help us rethink

our problem-solving strategies at the right moments in a process of inquiry. It is important to emphasize that we do not think of such productive data-frictions as something that arises spontaneously. Most people prefer to avoid friction and safely rest in their native point of view, so frictions have to be deliberately designed and cared for. Just as traditional anthropology has invented methodological techniques to avoid the risk of 'going native' (Fuller, 1999), so will machine anthropology have to develop a typology of productive data-frictions and device strategies for realizing them.

THREE EXPERIMENTS IN MACHINE ANTHROPOLOGY

This section introduces three case-studies where we have experimented together with ethnographers and consultants in practicing machine anthropology within their fields. In The Thick Machine (TTM) experiment we built an arcade game where ethnographers could compete against a neural network in guessing emoji reactions on Facebook (Munk et al., 2022). In the case of PUBLIKUM, we collaborated with Will&Agency (W&A), a consultancy firm, to develop a platform that would enable producers in the movie and television industry to examine how their movie themes resonate with ongoing societal discussions. In 'Do you live in a Bubble?' (DYLIAB) we worked with Gehl Architects to create cartographies of Copenhagen's political diversity through patterns in digital traces from 150.000 Facebook users (Madsen, 2022). Together these cases will illustrate how emic and etic machine friction have the potential to stimulate creative thinking and disrupt established beliefs, fostering new insights and perspectives. For each, we will a) describe the empirical 'itch' that motivated the experiment, b) elaborate on the prior held beliefs existing amongst the involved participants before the experiment, c) provide a detailed account of the data techniques used and d) discuss the emic and etic frictions it gave rise to.

The Thick Machine

The motivation for designing a game where ethnographers could compete against a neural network in guessing emoji reactions on Facebook was to test if machine learning would be able to interpret cultural meaning in online debates. Having experience in analyzing such debates qualitatively, TTM was essentially an experiment with our own practices as digital anthropologists. This involved risking prior beliefs about the respective strengths and weaknesses of thick data versus big data. For example, we presumed that there would be situations where a machine learning algorithm would be able to do as well as, or even better than, a human ethnographer in learning to behave like users of an online platform, but that these situations would be limited to things like emoji reactions where the infrastructure of the platform (in this case Facebook) provided a consistently datafied target and feature set for training. What motivated us to build the Thick Machine was thus an

opportunity to test the extent to which state-of-the-art predictive machine learning (anno 2019) would be able to do interpretive ethnographic work.

We chose to work with neural networks because this ML technique was known to have the highest predictive accuracy at the time of the experiment. The neural network was trained on a large corpus of Danish language debate (posts and comments) on public Facebook pages. When a user commented and emoji reacted ('heart', 'love', 'haha', 'wow', or 'angry') on a post, the neural network was fed the emoji reaction as target and the tokenized comment text as features. It thus learned to associate particular patterns in comment text with a particular emoji reaction. The training took place on a randomly selected 70% of the corpus, reserving the remaining 30% for testing. In the arcade game, which we built as a physical device out of plywood, a screen, and a pair of Rasberry PIs, ethnographers in our lab were then invited to try their luck against the neural network guessing the correct emoji reactions from the post-comment pairs in the test set.

When the arcade game had been physically displayed on the lunch table in our lab for a week, encouraging our colleagues to play, we began evaluating the results. The most obvious thing to compare, we thought, would be the overall accuracy of the human players versus the machine. Somewhat surprisingly, the machine and the human players were equally bad. The machine had an overall accuracy of 51% (random would have been 20% with five equally distributed emojis to choose from), which we perceived as decent or at least a success to the extent that it clearly managed to get something right. This meant that there was, at least in some situations, discernible textual patterns associated with a type of emoji reaction that an algorithm could learn. What was more surprising to us was that our colleagues who had been playing the game against the machine had an almost identical overall accuracy of 52%. We therefore decided to explore the results as a confusion matrix to see which emoji reactions the human players and the machine respectively had a tendency to get right and wrong. This visualization became the central data artifact in the experiment.

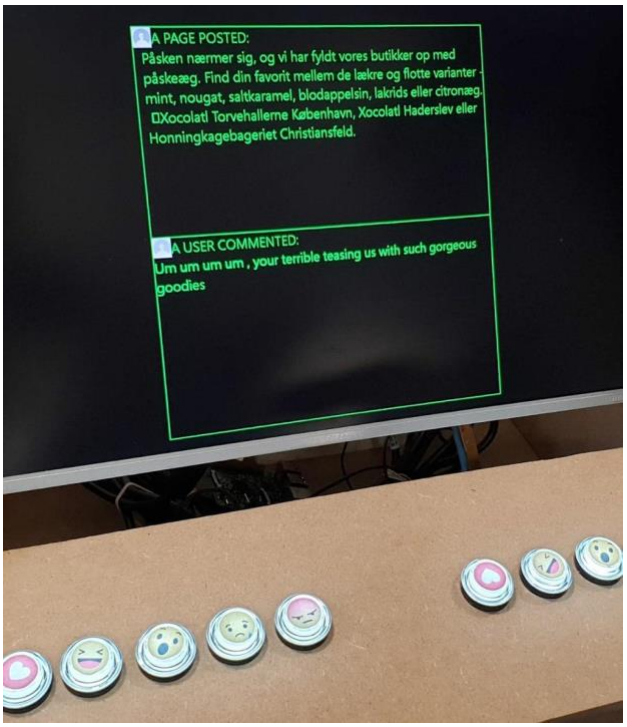


Figure 2. The Thick Machine

What kinds of friction are generated?

The gamification of the predictions in a sense ensured immediate buy-in from the participants in terms of making emic frictions visible. As a player of the arcade game you first see a randomly selected post from the test data followed by randomly selected comments to that post. You then commit to a prediction by pressing a button corresponding to an emoji reaction and the screen records your choice. When you are subsequently shown first the prediction of the neural network, i.e., your competitor, and then the correct answer, i.e., how the user who wrote the comment on Facebook actually emoji reacted, you are naturally prompted to reflect on why you guessed wrong, why you were right and the machine was wrong, or vice versa. Exploring the results of all the games as a confusion matrix allows you to put those reflections into perspective, for example by noticing that love reactions tend to be easily predictable by both the human players and the machine, or that wow reactions are really ambiguous and often mistaken for various other emoji reactions. Again, typically in the same way for both humans' players and machine. You could say, then, that the algorithmic experiment facilitates emic friction with emoji culture on Facebook. Through the game you kind of empathize with the struggles of the algorithm to get certain situations right because you experience those difficulties alongside it.

The experiment forced us to realize that we were, in fact, unreflectively reproducing an ethnoscienetific idea about cultural algorithms. However, another layer of algorithmic friction became evident when we explored the confusion matrix and reflected on the nature of the game we had created. Was the point, as we had first imagined, to test if a neural network could "hang out" (i.e., train) in a Facebook data world and thus learn the cultural codes that govern how you emoji react in different situations? If so, then there were two ways of evaluating the game. Either the human players and the machine were competing against each other to become as good as possible at mimicking users on Facebook, or the machine was competing against itself to become equally bad (or good) as the human players (supposedly the real digital ethnographers) at mimicking the users on Facebook. In the former case, neither the machine nor the humans are doing particularly well. In the latter case, the machine is actually remarkably good at making the same mistakes and getting the same emojis right as its human counterparts. But the confusion matrix also manifested some etic friction here. If, in fact, a neural network was able to reproduce the same mistakes as digital ethnographers encountering a Facebook discussion for the first time trying to interpret what is going on, then perhaps the game is not actually a competition to be as accurate as anyone. Rather than thinking about the neural network as a device that would be able to perform cultural interpretation, i.e., do thick description, we began thinking about it as a device that would point us to situations worthy of said thick description.

There was, we realized, something essentially ethnoscientific about the way we had first devised the game. It was built on the presumption that there would indeed be discoverable cultural codes – or cultural algorithms – that governed how emoji reaction was done on Facebook. But the point of thick description, in Geertz' original definition, was precisely to oppose that idea and show how some situations are deep with multiple, partially overlapping layers of meaning, complicating interpretation, and making thick description both necessary and worthwhile. It was, Geertz contended, precisely in the situations where there was no single ground, no basic cultural facts to explain unambiguously what was going on, but rather multiple emic readings of the same situation that interpretive ethnography was most needed. When you explore our confusion matrix and the underlying qualitative data it becomes evident that both digital ethnographers and the neural network encounter those deep situations in the same way, namely as a difficulty to predict the correct emoji reaction. The experiment thus generates both an emic friction with the users on Facebook, which points to potentially fruitful and worthwhile situations for thick description, and an etic friction with our own tacit understandings underpinning the design of the game.

Publikum

In the case of PUBLIKUM, our collaborators' emic itch was to utilize "big social data" in an anthropological fashion, wherein the data could be employed to challenge

both their own and their client's (filmmakers) ethnocentrism regarding a script's thematic alignment with ongoing societal discussions. This responds to a heightened sense of enthusiasm within the cultural industry to mobilize burgeoning reservoirs of social and cultural data.

Our collaborators initially harboured the belief that the PUBLIKUM ('audience' in English) platform could serve as a valuable tool to expedite their project tasks by swiftly identifying patterns within vast quantities of social media discussions. Initially. On the other hand, their clients, film makers and cultural actors, were driven by a sense of curiosity and anticipation. They saw the platform as an opportunity to actively engage with how a broader audience articulates and describes the thematic elements they are currently working on. Engaging with the platform was perceived to enrich their understanding and provide valuable reflections that could inform their manuscript writing process moving forward.

The PUBLIKUM platform facilitates the creation of semantic networks through a single click of a button, achieved by uploading data into an algorithm. This data is sourced from an external provider, wherein consultancy workers develop specific Boolean search strings tailored to each specific movie. As a result, movie-specific networks revolving around particular themes are generated. Leveraging natural language processing (NLP), the platform employs techniques such as Part of Speech (PoS) tagging and TF-IDF ranking to extract relevant words and establish connections when they co-occur within the same documents. To visually represent these interconnected keywords, visual network analysis techniques such as Force vector layout and Louvain modularity are employed (Jacomy et al., 2014). This approach enables the clustering of related keywords and distinguishes them visually using colour coding. The platform generates networks that provide visual depictions of ongoing onlife discussions (Floridi, 2015). These networks can be explored via an interactive dashboard, allowing users to click on individual keywords and access the sources that mention them. Consultants can thus delve into the exploration process and make annotations concerning the diverse ways in which a particular topic is discussed.

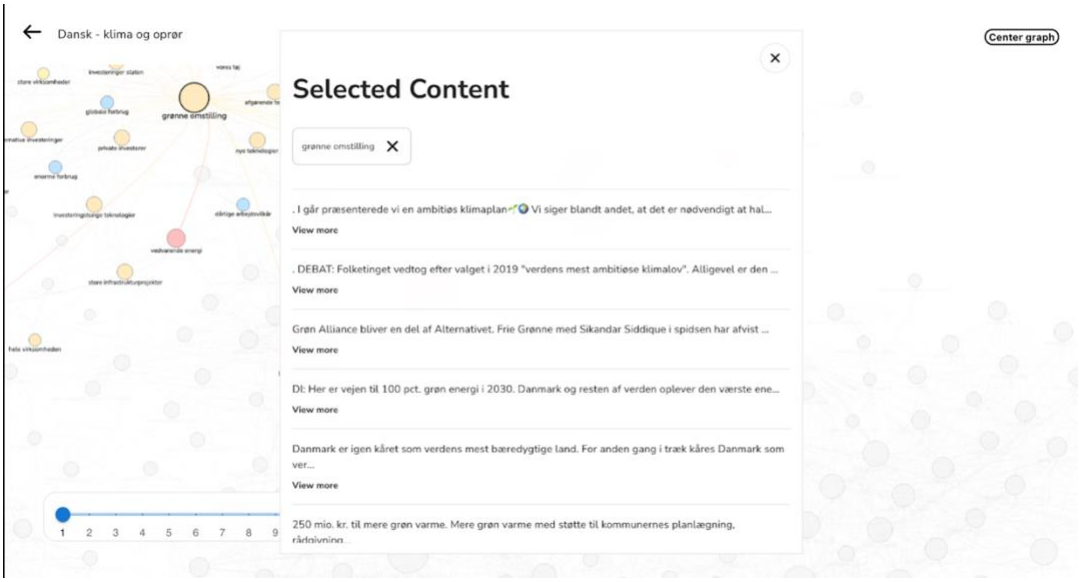


Figure 3. The PUBLIKUM platform creates a co-occurrence network, allowing users to click on each node to view all articles mentioning the words. You can then directly access the link to each site.

What kinds of friction are generated?

The PUBLIKUM platform, despite its one-click network generation function, did not expedite project tasks. Rather, consultants had to engage in intricate work of deciphering between worthwhile and subpar data, and between what would be generic findings or those valuable for further analysis. Initially, the act of downloading data from a data provider appeared straightforward, as Boolean search strings can be utilized to formulate search queries that assist in obtaining relevant information. However, in practice, this process required considerable attention, experimentation, and continuous refinement. Consultants encountered the challenge of translating a thematic concept, such as "youth climate rebellion," into a search string that accurately generates the desired thematic outcome. To accomplish this, they must meticulously choose which words to incorporate into the search string, considering the point at which a word becomes too broad and yields irrelevant data. This endeavour may elicit frustration, as an incessant cycle of novel keyword attempts, inclusion, exclusions, and the pursuit of more refined equivalents in lexical compendia ensues, all aimed at identifying the words that most aptly encapsulate the discourse. However, through this frustration the consultants also began to care and learn about their data, e.g., understanding the language used in a specific context. In an anthropological fashion, they acquired the language of the community that they studied. Additionally, engaging with the PUBLIKUM platform necessitates a rigorous qualitative and quantitative process, involving continuous alternation between distant reading of networks and close reading of blogs, newspaper articles,

or social media comments (Jänicke et al., 2015). This approach consumes a significant amount of time, but it is indispensable for extracting meaningful insights related to specific movies.

The observation of the consultant's work illustrates that rather than a pure device of acceleration, PUBLIKUM engendered anthropological encounters with the online communities under investigation. Consultants had to combine their existing understanding of themes in order to carefully attune the search strings to capture all relevant, but not too generic data. Tinkering with search strings must therefore not be seen as a pure auxiliary task of arriving upon a pre-confined set of data, but as a creative process of demarcating what might be meaningful for the given movie theme. Friction in this case does not emerge in situations where data analysis is concluded but permeates the data gathering and analysis. Consultants are required to engage with search strings and therefore produce meaningful insights. The machine's idiosyncrasy of potentially collecting too much/too little or ir/relevant data acts as a friction in their creative process. The 'right' search string is thus an outcome of calibrated friction.

Furthermore, observing the work of consultants, we found another type of machine friction. Insights and annotations derived from exploring the platform had the potential to introduce emic friction among *cultural actors*. This happened when creative writers or directors observed the various ways in which the topic, they were working on is discussed. It is not only one way in which their theme is described in the data, but multiple. A friction emerges where patterns within the text fail to disclose a singular and stable definition of a theme. Instead, they present multiple, heterogeneous, and unstable interpretations. This friction challenges the preconceptions held by creative directors and manuscript writers regarding the themes, as well as their expectations of how the potential audience will respond to the film.

The visualization of networks and the multiplication of themes also leads to the emergence of etic frictions. This can be exemplified by a workshop among consultants, directors, and producers that we participated in, involving the development of a network encompassing a corpus of 174,323 online discussions focused on social housing areas in Spain. One annotation drew attention to the vibrant nature of these areas, characterizing them by the presence of youthful creativity, artistry, and a flourishing music scene. The producer involved in the workshop expressed her concern regarding this annotation, because she had repeatedly insisted the protagonist should be a middle-aged woman that she considers notoriously underrepresented in large-scale television productions. The tension between the annotation and her vision for the movie led to a moment of silence during the workshop, followed by a negotiation of what subsequent steps to take based on these findings. The consultants had successfully created a friction between the data and the producer's ideals. After some deliberation on how to interpret the findings, the author of the manuscript offered an alternative reading,

suggesting that the concept of 'youth' could be reframed according to experiences of being new to a country. As a consequence, the created friction as well as the moment of deliberation allowed for a deeper exploration of the experiences within this community, which consisted of diverse immigrants. Such an alternative perspective had the potential to offer a unique understanding of the norms and dynamics of the host country. What initially sparked an emic friction, evolved through the discussions among all participants involved in the workshop, leading to an etic friction. The focal point of this friction shifted as "youth" underwent ontological redefinition to become something that was both useful and productive for their story.

This episode illustrates how network visualizations acted both as a challenge for movie producers while also initiating moments of productive negotiation. Machine friction thus created a site of creative practices. While in this case causing a moment of disconcerting for the producer, visualizations that yielded no challenges to preconceived ideas were generally considered not as meaningful by the filmmakers. Providing frictionless or generic insights lead to frustration whereas some visual friction with the networks allowed for negotiation. The objective for the consultants lies therefore in generating the *right* friction and subsequently orchestrating workshops that open spaces of re-configuring themes and topics.

Do You Live in a Bubble?

DYLIAB was a project initiated because urban planners have a hard time mapping the ephemeral issue of political diversity in urban life. The only available data on urban political geography is the voting statistics that are aggregated on electoral districts by the national bank of statistics. Besides that, the main source of knowledge is hearsay in the sense that people living in cities have their own mental maps of where they fit in politically or not. This was the 'itch' that stimulated the need for experiments. The architects turned to data from Facebook to map the city because their personal mental maps did not carry enough weight to act as consultants on the issue and the available data was too narrow in space and time. None of the available tools seemed satisfactory in terms of understanding how urban life influences political segregation on the scale of the city. The hope was that data from Facebook's API would provide a quick answer to a question that would otherwise be difficult to approach. A quick gateway to understand the city from the perspective of the 150.000 users that interact with political and urban events in Copenhagen on Facebook.

The architects know Copenhagen both as residents and professionally as urban planners. They thus expect some areas and streets to be low on political diversity and others to be high. Knowing Copenhagen, many in the project expected the area of Nørrebro to be low on political diversity and each of the participants held beliefs about the extent to which their own streets and areas would have a high or low political diversity. These beliefs were all grounded in a shared assumption that urban spaces can be translated into a continuous area on a geographically projected map.

Under this assumption an area could be a given street, a public square or perhaps a neighbourhood. Each area could then be assigned a political diversity score.

The artifact we built for acquiring this new point of view was an explorative database where each venue in Copenhagen had a diversity score represented as a dot on the map, which was constructed in the following way. First, we assigned a political orientation to anonymous users' ID based on their interaction with political content. For instance, if a user was disproportionately positive towards content from left wing content, he/she would be marked as 'left leaning'. Second, we looked at the attendance-lists of 120.000 events in Copenhagen and cross-referenced it with the first list of IDs to describe the political breakdown of the event. For instance, if a concert had 100 people attending, we would describe the percentage of these belonging to the left wing, the economic liberals, and the nationalist parties respectively. Third, we translated this distribution into a diversity index between 0 and 100, where 0 indicates an event that could only attract people from one political block whereas 100 would indicate a diverse event where the audience was split between the three blocks. It was from this basis that we produced the local cartography of political diversity that can be found here: www.tantlab.aau.dk.

By clicking on the dot, you can make the political breakdown of the venue as well as a description of its most politically diverse event. Importantly, the granularity of the underlying data means that the datascape could have been built in various ways. An important part of constructing it was thus to align on decisions as to how to curate the data and to what extent we would use algorithmic techniques – such as spatial autocorrelation – to find patterns in it. We ended up building an explorative datascape on a geographical map that enabled the architects to 'hunt' for patterns rather than receiving those patterns from an algorithmic segmentation.

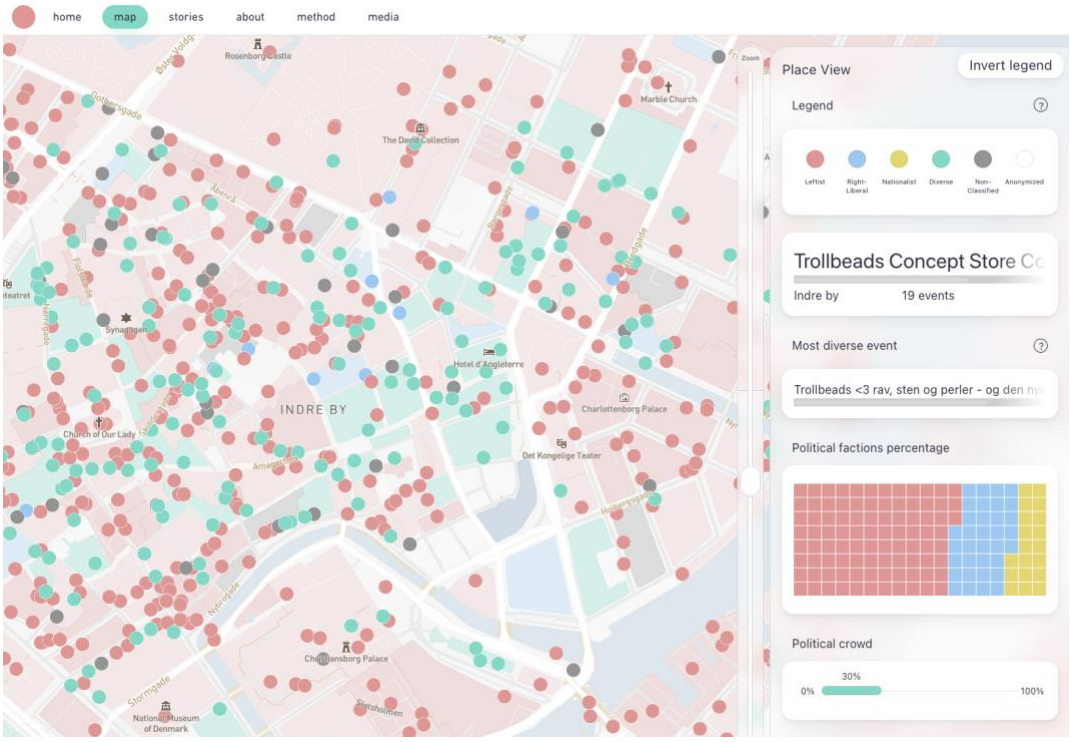


Figure 4. The DYLIAB datascape

What kinds of friction are generated?

As an artifact this datascape afforded emic frictions by returning different results than expected by the architects. In their first data explorations, conversations sounded as follows. Why is Israel's Plads low on political diversity? It's been designed for such a variety of uses? What about the waterfronts? Why is Amager beach high on diversity whereas the harbour front is low? Does that have something to do with the accessibility of public transport? Is political diversity explained by transport patterns rather than architecture? All these questions are examples of emic frictions where the point of view of the architects are in dissonance with what they see on the map. However, since much of the map makes sense, they feel committed to explore these frictions and provide explanations for them. However, the datascape also stimulated etic frictions around theoretical commitments concerning the role of space in public life. Whereas the questions above make sense within the frame of continuous space discussed above, some patterns in the datascape troubled this. An example is the tendency for types of venues such as tattoo parlours, football stadiums and specific food venues to stand out as especially diverse. Perhaps they even share many of the same. Being spread across town; they do not constitute an 'area'. They are distant in geographical space – but may be socially proximate to each other socially. This troubles Tobler's law stating that "everything is related to

everything else, but near things are more related to each other". While this is a rule that does have a big impact in architecture and urban planning the data stemming from Facebook affords representing space in different ways than geographical. For instance, the architects embarked on visualizing this data as a network where two venues were close if theory shared many users. An experiment that moved them from emic friction to etic frictions that troubled important beliefs in social geography.

BUILDING FRICTION MACHINES

The three presented cases above all share the ambition to use AI and Big Data as devices of friction rather than acceleration. We refer to this as the art of building friction machines. However, it is important to emphasize that such machines can be built in a variety of different ways depending on the context of use. As illustrated in the table below each case has its friction machine built in a distinct way as a response to a distinct epistemic itch. For instance, whereas both TTM and PUBLIKUM involve the use of machine learning, DYLIAB puts more emphasis on visual exploration.

We propose to think of the different data techniques used as different building blocks that can be combined in distinct ways to produce predictive frictions. In fact, we want to argue that the competence to build friction machines that fit a given organizational context and 'itch' is central to the profession of the machine anthropologist. In the last part of this paper, we therefore want to suggest a mini typology of friction machines that can perhaps inspire future experiments in this area. Each of these types have reference back to the three cases above and each of them entails rethinking and sometimes abandoning central concepts and suggestions for best practices inherited from the 'acceleration framework'. We think of these types as data-intensive equivalents to the methodological tactics anthropologists have developed to maintain productive friction while doing fieldwork, such as seeking out situations of acceptable apprenticeship, making sure to actively shift situation when things become taken-for-granted routine, or using introspective fieldnotes to reflect on your own position in the field. They are useful for the anthropologists precisely because there is a constant risk of 'going native', i.e., a risk of avoiding friction with a field that thus becomes a docile setting. The equivalent risk in machine anthropology is to slide back in the quality-criteria associated with the accelerated data science framework in figure 2. The three types of friction machines discussed below are proposed as remedies to that risk.

Table 1. Comparison of Case Studies: DYLIAB, Thick Machine, and Publikum

Case	Prior Held Beliefs	The Initial 'Itch'	Data Technique	Emic Friction	Etic Friction
DYLIAB	Anecdotal evidence on the political diversity of specific Copenhagen areas	The hope that Facebook traces can offer relevant data on a more granular scale than voting patterns in electoral districts	The production of a diversity index and explorative datascapes designed from	Surprises regarding the political diversity of specific areas and a suggestion to move the focus from urban design to urban mobility in explaining political diversity	A need to revisit theories of space underlying the original beliefs. A move from Tobler's law and geographical proximities to networks and social proximities.
Thick Machine	Assumptions about machine learning ethnography and thick data vs big data.	The hope is to test how good a neural network performs compared to a human ethnographer online.	Confusion matrix	Surprise about which emoji reactions are easy and difficult to interpret on Facebook.	Rethinking what machine learning can do for thick description. From doing the interpretation (high accuracy) to pointing us to worthy situations that are deep enough (through its failures)
Publikum	Initial research and personal experiences related to writing a movie script.	The hope is to reach a larger audience and/or secure more funding for their creative project.	The production of a visual network that explores different ways of thinking about movie thematics.	Multiplication rises, when a topic is revealed not to have a single stable definition, but multiple heterogeneous, and unstable interpretations.	Rethinking core thematics aspect of the manuscript. A move from personal ideas to ontological reflections and negotiations.

Algorithmic Friction (and the Reformulation of 'Accuracy')

One strategy for creating data-frictions is to commit to letting machine learning algorithms find patterns in complex datasets. As formalized program machine

learning algorithms have the specific affordances of a) putting things into relation with each other in a structured way and b) returning such relations in charts and numbers. An example of how this can stimulate productive frictions is the use of predictive neural networks in building the think machine. The algorithm has a structured and formalized way of relating training data encoded by humans and algorithmic predictions on the same data. Moreover, the confusion matrix returns these relations in a way that can be accessed and evaluated by the participants. The relation manifests itself as false positives and false negatives and a measurement of the accuracy of the applied algorithmic more. In TTM the confusion matrix served the role as an artifact that prompted participants to rethink what machine learning could/should do in interpretative ethnographic work. Instead of finding neural networks relevant because of their high accuracy, participants were stimulated to think about the failures of the machine, its thickness (in the sense of being daft), as an asset that could point to deep situations worthy of actual thick description (in the sense of constructing a reading of deep situations where multiple layers of meaning make interpretation complicated and a moving target).

However, while the confusion matrix – used in this way – has the potential to be a component in a friction machine it is not usually presented as such. In order to serve this function its core components need reinterpretation. It needs to be liberated from its usual use in the accelerated frame. In the thick machine this is done by turning the notion of 'accuracy' on its head. Instead of interpreting low accuracy as a reason to discard the algorithm, algorithmic misprediction is used as a tactic to identify ambiguous and rich cases where thick description is necessary and worthwhile (Munk, Olesen & Jacomy, 2022; Rettberg, 2022). Something similar is happening in PUBLIKUM where the use of TF-IDF techniques liberated from the attempt to identify the 'correct' number of topics in the qualitative material. Rather, the verdict on the relevance of the returned topics is something that is established in dialogue with the formalized algorithm which is naturally biased toward prioritizing differences across documents. The relevant topics are the ones that point to discussions that are deep enough to serve as inspiration for creative manuscript writing.

This use of techniques of algorithmic pattern recognition requires a new way of talking about – and evaluating – their epistemic qualities. Instead of thinking about such techniques as marking 'the end of theory' (Anderson, 2008) and the rise of pure inductive science, we propose to think of them through the lens of ethnography and pragmatism. We have already mentioned how they in a Geertzian frame can be thought of as guiding attention to situations in need of thick description. As an addition to that we want to propose that we can think of their guidance as an example of the mode of thinking that Peirce called 'diagrammatic reasoning' (Tylén et al., 2014). This strategy of inquiry is precisely characterized by letting collective attention guide by formalized systems in order to arrive at intersubjective moments where frictions between points of view are explicated. In the context of machine

anthropology, we suggest thinking about machine learning from this philosophical backdrop rather than any proposition as to how such techniques can lead to empirical investigations free of theory and bias.

Visual Friction (and the Reformulation of 'Design Guides')

The second friction strategy relies less on algorithmic data-processing and more on designing artifacts to support visual thinking. Whereas algorithmic friction returns clear numbers that can very clearly disturb pre-existing expectations if one knows how to interpret them, visual friction requires less data literacy. Feeding on developments in interactive data visualization it involves building datascapes that enables users to collectively explore granular and multifaceted datasets in ways they deem interesting. Both PUBLIKUM and DYLIAB takes advantages of this possibility by involving the applied anthropologists in conducting visual filtering on a broad set of metadata and zooming between aggregated overviews and qualitative details. The datascapes thus come to function as a semi-structured sandbox where tactics for navigating and interpreting complex data become a collective concern. The effect is that people's distinct navigation tactics are put in relation to each other in ways that generate productive frictions.

However, using data visualization as a component in a friction machine also requires revisiting and rethinking some of the dominant guidelines for how to produce them. This is especially true for guidelines associated with the so-called explanatory data visualization that we know from e.g., data journalism. Here the aim is to produce visualizations that efficiently communicate an already established truth (Dzuranin, 2022). This involves a simple and structured narration of which the genre of scrolly telling is a great example. To the contrary the explorative datascapes in both PUBLIKUM and DYLIAB are built to indicate vague structures (patterns of dots or clusters) that require more investigation to be meaningful. In that sense they stimulate explicit guessing and sense-making in the presence of others. An activity that can even be further stimulating by deliberately hiding labels and other information before guesses are made.

This is a way of thinking about data visualizations can once again find its theoretical home in ethnography and pragmatism that both emphasize the need for developing techniques to stimulate a form of abductive reasoning where the practice of guessing plays a central role (Tschaepe, 2014). Importantly, abductive thinking does not thrive on guessing run wild. In his writings on the topic Peirce emphasized the need to stimulate what he called controlled and piecemeal guessing. He insisted that there is a normativity to the practice of guessing in the development of hypotheses – the fundamental aim is to motivate people to make sense of specific tangible empirical patterns. Our suggestion is that we can productively think of interactive data visualizations as serving this aim rather than the aim of telling clear and unambiguous stories. This can, for instance, be achieved by deliberately hiding

information to make the visual artifacts vague enough to stimulate guesses (Munk, Madsen & Jacomy, 2019).

Curated Friction (and the Reformulation of 'Noise')

The third friction strategy revolves around the curation of data and the operationalization of metrics. Because the contemporary data environment is way more granular and messier than its predecessors, data projects often involve decisions about what to keep as data points and how to operationalize concepts. This task is also a task of putting distinct data points into relation with each other by grouping some as relevant and perhaps even adding some together to produce a relevant measure. In the case of PUBLIKUM we saw how the task of demarcating relevant information from irrelevant data generated discussions about the scope of the inquiry and what would be, to the consultants' minds, creatively acceptable to the client. Similarly, in DYLIAB it was the difficulty of aggregating the relevant dots in a continuous space that motivates the attempt to measure social distances and thereby trouble the notion of space altogether. The interesting frictions stem from the process of curating data and measurements.

However, both cases also illustrate that there is a need to rethink the notion of 'noise' in order to achieve this kind of friction. What counts as noise changes when etic frictions motivate a change in the original frame. In DYLIAB diverse venues were in the beginning seen a noisy in the sense that they disturbed the possibility to see where public space ensures diversity. However, once the spatial frame changed, the architects revaluated their notion of which data points counted as noise and which did not. A similar shift in the demarcation of noise from signal happens in PUBLIKUM as well. So, rather than thinking about data curation and cleaning as a matter of reducing noise it can be seen as a process of establishing demarcations around what is meaningful. Again, we can make sense of this through Peirce's approach to 'operationalist thinking' which precisely suggests that one of the heuristic values of quantification is that it necessitates explicit conversations about this demarcation (Peirce, 1878, Dewey, 1929). Conversations that often bear with them etic frictions.

MACHINE ANTHROPOLOGY AS ORGANIZATIONAL INNOVATION?

After having outlined three types of data-frictions and rooted them in the academic fields of ethnography and pragmatism, one question remains? Why is it valuable for applied anthropologists to engage in building friction machines? Why turn to machine anthropology when traditional fieldwork can deliver both emic and etic frictions? In order to answer this, we return to Stark's theory of innovation (Stark, 2011). In his book 'the sense of dissonance' he makes the argument that innovative organizations are characterized by incorporating heuristics for stimulating friction and dissonance in the right moments in a decision process. Importantly, his

work emphasizes how formalized models can play such a role if they are repurposed in ways that liberates them from the logic of efficiency that often guides their production. More specifically, in his studies of financial trading he (and Beunza) introduces the notion of 'reflexive modelling' to describe situations where predictive models are repurposed by traders (Beunza, Stark, 2012). Whereas these models are originally designed to predict market dynamics, traders repurpose them to understand the social factors that shape the behaviour of other traders. Models are used as social cues rather than objective representations of the market. Traders recognize that their models are influenced by their own interpretations and assumptions, as well as the interpretations and assumptions of others. They come to act as devices for stimulating collective conversations about exactly that. They help avoid the taken-for-grantedness of traditional models.

Stark and Beunza's point is that this ability to repurpose formalized techniques – and liberate them from their intended use – helps improve innovative problem solving among traders. Just as points can be generalized to other professions, we see our work as extending these ideas into data science in a broader sense. The suggestion of friction machines has similarities with Stark's reflexive models, but our focus is more narrowly focused on how to design productive frictions through curation of granular data, experiments with pattern recognition and design of interactive visual interfaces. Just as reflexive modelling, machine friction necessitates asking searching questions and reflecting critically on the potential negative consequences of accelerated automation and uncritical AI adoption. By creating emic and etic friction through machine learning, underlying assumptions become visible and tangible, creating avenues for practitioners to rethink ideas and explore alternative approaches. Furthermore, machine friction advocates for adaptive practices. Instead of relying solely on established best practices and the acceleration framework, practitioners are urged to continually reassess and adapt in response to friction and dissonance created by the machine.

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Smartphones and the Future of Remembering

Frictions, Problems, and Pathways

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This ethnographic case study discusses friction in everyday information-seeking on smartphones and proposes new pathways for addressing these barriers. Our study delves into how smartphones have become integral tools for memory recall and inscription, creating multiple types of mnemonic friction. We draw on Andy Clark and David Chalmers's "Extended Mind Thesis" to situate our case and to emphasize that smartphones are more than just a device we own—they inform who we are and what we are capable of. But smartphones also produce new kinds of social, psychological, and epistemic problems. Our case surfaces how users confront an ever-increasing pool of sometimes interconnected, sometimes incommensurate, and often intractable mobile phone memories. We explore the consequences of this friction for power, capabilities, culture, and the challenges of information overload in an era where people have become inextricably reliant on smartphones for memory, learning, knowledge, sociality, and practical action.

Keywords: Information seeking, Memory, Smartphones, Software, Personal computing, HCI

INTRODUCTION

This case study discusses friction and memory in everyday information-seeking on smartphones. We were tasked with investigating unmet needs, mental models, and emerging marginal practices in iPhone information-seeking. It was a foundational study, and given our wide topic, we were able to generate a host of insights. Here, we focus on the least obvious and most thought-provoking theme we encountered: retrospective information seeking. That is to say, smartphone-based memory tasks.

We begin with the recognition that smartphones have become an integral—ineliminable, even—element of human memory. Along the way, we also discovered that these new memory capabilities create previously inconceivable friction in memory creation, retrieval, persistence, and forgetting. People face an ever-increasing pool of interconnected, incommensurate, and intractable mobile-phone-entangled memories—and are liable to involuntarily forget, or be unable to forget, in hitherto unimaginable ways. We explore the consequences of this friction for power, capabilities, culture, and the challenges of information overload in an era where people have become reliant on smartphones for memory, learning, knowledge, sociality, and action (Haider & Sundin, 2022; Paul, Heersmink, & Clowes 2017; Ward, 2013; Smith 2022; Drain & Strong, 2015).

Memory is far from simple. We can, for example, draw imperfect distinctions between sensory memory, short-term memory, working memory, explicit and

implicit memory, prospective memory, semantic memory, autobiographical memory, collective memory, and episodic memory. To complicate matters further, human memory systems may involve technological aids or partial replacements (Yates, 2013; Clark & Chalmers, 1998; Clark, 2010; Aydin, 2015). Memory and technology are entangled.

No technology has done more to transform and buttress our biological memory than writing (Aydin, 2015; Levi-Stauss, 2011). To writing, we can add photography and film as well as vinyl and now digital audio recordings. Words, sounds, and images (and moving images) can be fixed and pinned down, that is, made immutable (Latour, 1986). This, we should remember, brings about a regime of knowledge and recall that is substantially different from our bare biological capabilities, i.e., just using our brains.

With the introduction and refinement of the smartphone in the last 20 years, all previous mnemonic technologies (often not understood as such) have been scaled down, rendered hyper-connected, and accessed through our smartphones (McLuhan, 1994). Multiple mediums of near-infinite memory recording and recall lie at the tip of our fingers. However, not all stories of technological advancement are straightforward. And this recent history of memory is no whig history. Our smartphone-entangled memory systems constrain our ability to remember in new ways, enable us in many others, lead to confusion, spark creativity, and transform joint inscription and recollection. In short, our smartphone-entangled memories are riven with friction. We understand friction, following Anna Tsing, as "the awkward, unequal, unstable, and creative qualities of interconnection across difference." (Tsing, 4).

But before we talk about the specifics of this blessing and curse and interconnection across differences of the near-infinite phone-based archive, a few words about how phones relate to brains and how these now-ubiquitous machines have become second nature.

Theoretical Framing of the Problem

Philosophers Andy Clark and David Chalmers have advanced what they call the "extended mind" thesis (Clark & Chalmers 1998). The idea goes that things outside of skin and skull, things outside of the brain, can be—and frequently are—essential elements of cognitive processes, e.g., memory tasks. These extended mind elements are "essential" in so far as if they were removed, overall competence and cognitive performance would drop.

When we use a notebook to remember a fact about the world, such as an address, then, when that notebook is being used to recall such information, the notebook is part of our mind—it is not an aid to cognition, it is part of cognition. Phenomenologically, remembering an address using only our brains is very different from using a notebook. Functionally, however, our brain or our brain plus a notebook can serve identical roles. There is a parity between mind and notebook in

terms of the role it serves in cognitive performance. Therefore, when some object in the world reliably serves a cognitive role that could otherwise have been carried out solely by using our brains, then that object is for all intents and purposes part of our mind, our *extended* mind. Just as a hammer extends the practical use of our arm, so too can a notebook extend the cognitive use of our brain-based memory.

The extended mind theory asks us to look beyond immediate appearances in order to see cognition and mind as broadly extended processes. Clark and others have also put forward the idea that sometimes these cognitive extensions don't simply reproduce or mirror internal cognitive processes, they might also "supersize" and otherwise transform them (Clark, 2010; Latour, 1986; Merlin, 1991; Vygotsky, 1994). Using cognitive tools, we can enhance cognitive processes such as memory in ways that far exceed what is possible with biological, brain-based memory. Today, nobody would deny that the phone has not only taken over many of our memory tasks, but also greatly increased our recollective capacities (Maguire, Woollett, & Spiers, 2006). But, as we will see, this is not a simple story transcending our biological capacities with the help of technology.

In framing our case, we also want to hazard the claim that the essential characteristics of new and ubiquitous technologies will be missed if we merely describe what these things can do *for* us and omit what they do *to* us. Or, better, how phones don't just expand our memory, but alter who we are because they alter how we remember and recall. Phones are not just things, they are one of our sources of self.

Memory is not simple—and smartphones are not entangled with a single subtype of memory. For example, smartphones can help us record and return to pictures, audio, and video; turn to the open web to confirm or retrieve half-remembered facts; toggle to saved pages, chats, games, or documents on our favorite apps; navigate half-recalled places and spaces with the help of maps that include saved, i.e., remembered, locations; jot down, revise, and return to notes; interpersonally communicate and recall these communications in a variety of modes both synchronously and asynchronously; and stave off boredom through reminiscence. But this motley list only expresses what smartphones do for us, not what they do to us, that is to say, what smartphones mean for how we remember, learn, feel, act, and interact. Following Langdon Winner (1986), we propose that smartphones and related technologies bring about a new form of life.

Winner adapted the technologies as a forms-of-life is a concept from Ludwig Wittegenstein's work on language as a form of life (Wittgenstein, 2010). The language we speak engenders, constrains, and informs the world we inhabit. So too, according to Winner, is it the case that the technologies we produce and incorporate into our lives bring about new worlds, not just new things. Remembering a trip entangled with an iPhone by drawing eclectically on iPhoto, Instagram videos, email reservations, Apple Wallet flight tickets, jointly-accessed plans on the Notes app, pins on the Google Maps app, WhatsApp and SMS messages, and so on is unlike

mere biological recollection or even the tech-enhanced recollection of the more recent past using a personal diary, analog photographs, and a video camera. Smartphones have fundamentally altered how we record, recall, and reconstruct our lives.

Technologies that restructure our physical, social, and—we would add—cognitive worlds bring about new ways of living that are often so profoundly different from what came before and ubiquitous that we overlook them (Malafouris, 2013). Internet search (e.g., Google search)—merely one common use case on a smartphone—is a form-of-life engendering technology. It has changed at a fundamental level how and when we find information, not to mention the quantity and quality of information available to us. And yet it is now, only a few decades after its introduction, entirely naturalized and unremarkable (Haider & Sundin, 2022). Similarly, life-altering technologies include the automobile, the telephone, and the electric grid—these technologies have profoundly altered our forms of life.

The new forms of life given to us by smartphones, here focusing only on memory, are both profound and hard for us to recognize. But our case study demonstrates that this transformation is neither straightforward nor categorically beneficial. It's full of relatively novel forms of friction. And recent gains in bandwidth, capacity, media types, and the shift from web to app-based mobile internet accessed on smartphones have led to a situation in which our digitally extended and expanded smartphone memory systems are chaotic juxtapositions of different types of memories used for different ends, accessed and persisting in different ways. The metaphor for smartphone memory is not a library or an archive, but a cluttered labyrinth.

This confusion of digitally offloaded memory leads to friction, understood as "the awkward, unequal, unstable, and creative qualities of interconnection across difference (Tsing, 2005)." The friction of smartphone memories is the subject of this case study.

METHODOLOGY

Our study drew on a set of qualitative research methods to arrive at our findings. These included in-depth in-person interviews, contextual inquiry, diary studies, and a literature review.

The sample size consisted of 20 respondents. We met in person, with 10 people in and around London, UK, and the same number in Paris, France. Each in-person session lasted 2-3 hours. Our participants were a representative mix of age, ethnicity, and self-reported technological literacy. All participants were iPhone users.

None of the methods we employed were groundbreaking. However, our interviews were conducted using a set of questions—a field guide—that made a number of theoretical assumptions we feel were instrumental in opening up a line of

questioning that helped to frame and guide our thinking in key ways. Purely "grounded theory," this was not.

Incorporating philosophical theories into our research was essential. It was not a matter of begging the question, that is, of making assumptions about what we would find and then, inevitably, finding it. Rather, by being open to and aware of non-obvious ways of framing smartphone functions, we were able to empirically generate new and original findings on the basis of theoretically informed ways of seeing the practices we were confronting. There is no such thing as "immaculate perception," as Nietzsche put it (2008). Had we not broken with our normal ways of thinking about smartphone use, we would have simply been reproducing our naive ways of conceptualizing user behavior. We agree with Loic Wacqaunt that "grounded theory" is an "epistemological fairytale" which, at best, simply reproduces the tacit theories with which the research unreflectingly brings to their experience (Wacquant, 1999).

As such, our field guide and dairy studies drew heavily on the extended mind thesis and related work around smartphones, information-seeking, and memory. For example, we had in mind Alexander Luria's *Mind of and Mnemonist* (1968), from which we knew that perfect, totalizing memory is a sclerotic fetter—so we developed questions to probe this issue (and its opposite, forgetting, misplacing, and otherwise losing memories users wanted to save and return to). We drew on Francis Yate's classic *The Art of Memory* (2013) to ask questions about what sort of canny systems users have contrived to find the information they wanted to return to. We asked about the role of photographs in respondents' lives, drawing on John Berger's *About Looking* (2015). And we probed users about how they think about their own lives—their autobiographical memory—using different apps and media on their phones (Campbell, 1997). Our study was grounded in deep and ongoing conversations in the literature coupled with an openness to novel empirical data, not in "grounded theory."

With our field guide in hand, we met participants in their homes or at places they frequented in London or Paris, respectively. This allowed respondents to feel at ease and for us to build rapport in order to unlock more insightful data points. We combined our interviews with contextual inquiry aided by laptop computers equipped with the application Zoom (a video conferencing software program). When the session began, respondents were asked to sign into a Zoom call with researchers using their phones and then share their screens for the duration of the interview—even though respondents and researchers were sitting face-to-face. This allowed us to more easily see what respondents were talking about, observe real behaviors associated with information seeking, probe respondents to show us what they were talking about, see the app ecosystem respondents were working with, as well as record audio and smartphone screens in case we wanted to return to them later for further analysis.

When possible, we tried to move from baseline themes revolving around our respondents' biographies, proclivities, and interests before moving on to see how

this intersected with information-seeking tasks, including those that were backward-looking such as memory recall, persistence, and planning (planning often fell under "prospective memory," i.e., remembering to perform a future action or see through a future intention). Along the way, we talked about which apps and utilities were preferred for which sorts of tasks, how users drew on other people in their networks to recall and find information, the role of cloud computing in all of this, as well as common problems they encountered. By having a simultaneous interview session over a long period of time in environments that were comfortable with users, we were able to build a very robust picture of how our respondents used their smartphones to find novel and past information, the problems they faced, and the canny epistemological systems and strategies they devised to navigate an ever-expanding world of apps, accounts, connections, and media types.

We supplemented our in-depth interview sessions with a short, 3-day diary study. Over the course of these three days, we asked respondents to report and reflect on information-seeking tasks from their day. The diary questions were sent to respondents' smartphones. They were asked to fill out short answers as well as upload screenshots. Allowing users to complete the diary study entirely on their smartphone helped to ensure the quality, and in many cases, candor, of the responses.

Finally, we analyzed the raw data using a few established techniques. First, we engaged in user storytelling, i.e., researchers took turns introducing respondents to enable the team to form a shared baseline. Next, we engaged in affinity diagramming of recurring and/or salient themes. Finally, we used a dialogical method of inquiry where researchers discussed the non-obvious and interesting themes from our empirical investigations set against a larger series of topics derived from the literature review, the confidential business problem we were tasked with investigating, and stakeholder interviews. The result of these conversations and debates was a set of empirically grounded and theoretically informed findings. Key among them for our purposes there was a set of issues related to smartphones as extended memory systems.

In summary, we relied on a selection of methods that captured deep qualitative understanding by building rapport over a long period of time in a comfortable setting, covering a large number of topics, capturing digital behavior as well as attitudes, and ensuring a slightly more longitudinal angle of comparison by asking respondents to engage in a digital diary over the course of a few days. Together, these methods yielded notable findings.

FINDINGS

Our ethnographic research delved into the storage, persistence, and retrieval of memories among smartphone users, uncovering significant challenges arising from fragmentation, joint creation, and the idiosyncratic nature of memory management.

Together, these relatively novel issues are a clear case of mnemonic friction: differences and clashes of memory types, origins, intended uses, and formats coming together in difficult and sometimes creative ways. Biological memory is complex and still poorly understood. When our memory system is extended into our phones—when part of who we are encompasses our increasingly powerful and feature-laden handheld and networked devices—frictions multiply.

The fragmentation, joint-creation, and idiosyncratic memory systems we discovered should not be understood hierarchically. Fragmentation coupled with an ever-growing quantity of saved information was behaviorally and visually most striking. Joint creation and recall were something that might seem mundane and pedestrian but represents a very intriguing form of technologically aided memory—something that is new and really only possible with smartphone connectivity and related features. Finally, the idiosyncratic nature of memory systems expresses a finding that covers all the others. In short, these findings are interrelated, not mutually exclusive, and rub against one another across their differences—there is friction among the findings.

Fragmentation

Fragmentation emerged as a prominent issue in our study as smartphone users exhibited a strong preference for app-based organization over open web access. In other words, memories were spread across different apps rather than stored in a central place. Consequently, the organization of memories became heavily influenced by the structure of apps and how they facilitated recall and persistence. This resulted in memories being scattered across multiple content and category domains. Moreover, the longer respondents used a particular app, the more memories they tended to accumulate, and, therefore, the more difficult things became. Users don't have an archive on their phones, they have archives—often with different principles of organization. For example, Google Maps affords users the ability to save locations with stars and other icons directly on top of a map. The saved information persists and is only visible when users are surveying the relevant representation of a territory. Compare this with those who used open browser tabs for information that they wanted to return to—and we note that many users downloaded multiple browser apps and associated these different apps with different clusters of domains. For example, Chrome might be for work-related information, whereas Safari was used for school and Firefox for music. Traditional file trees were also employed by some but not others. Using an app like Reddit, people were able to find old posts by going to their user profiles. Using Youtube, people made sets of playlists organized by theme or topic. Generally speaking, certain themes important to users, music, for example, were effectively distributed across many apps and formats.

Different kinds of knowing and remembering (compounded of course, with drivers such as curiosity, norms, and social pressure) led respondents to select different apps and utilities. For example, for crowd-sourced opinions, they might turn to Reddit or TikTok. Expert opinions may lead them to Youtube or Twitter, or

trusted websites. Inspirational images might lead them to select Pinterest. Important long-form opinions may be on Substack, more objective accounts of things on the Wikipedia app. Upcoming flight information on the airline's app, health information on a national health app, tasks on Todoist, saved articles on the news app, and so on and so forth. This covers a kind of library model of information seeking, a village model of information seeking, and an expert model of information seeking, and so on. Fragmentation and friction abound in ever-increasing types of memory, apps used to access them, and media formats in which they are recorded. It's not a mosaic of memory, it's an ever-expanding mixed-medium sculptural collage. An amalgam. An ever-growing mess. Or, better, a maze.

Some users preferred to save important memories on their phone's hard drives in the form of photos or notes. Others eschewed this strategy for fear of losing, breaking, or having their phone stolen, resulting in involuntary oblivion. Instead, they used cloud-based solutions such as cross-device app accounts (e.g., YouTube), iCloud, Notion, or even Microsoft Office. Indeed, we have been talking about memories extending into smartphones, but that's not entirely accurate. In many cases, these memories are stored in fragments on servers all over the world and only accessed via the phone. We also observed a cloud versus local storage pattern that correlated not only with the level of tech-savviness but, more importantly, with income and budget. In other words, those with more income could afford to shelter their phone-based memories from loss. Those without money exposed themselves to a serious threat of forgetting.

Users expressed frustration as they found it challenging to locate specific memories due to the lack of a unifying tool that could seamlessly bring together these dispersed and often incommensurate fragments. As a result, the coherent narrative of personal experiences became fragmented, a sense of memories being at the tip of one's fingers but not discoverable (e.g., forgotten passwords, failed platforms). This impacts the way individuals perceive and reconstruct their memories, which, in turn, greatly informs and influences their sense of self.

Smartphones, in principle, should be a perfect way to store and retrieve information. But the fragmentation of an ever-expanded pool of memories can thwart this promise. Because the information was spread out across many points of access using different systems, it demanded that users recall these pathways in their brains. This was a serious and often unsuccessful cognitive burden. While the content is on the phone, how to get to it is more often than not still in users' heads—and biological memory tends to decay. It is as if users have built a massive memory palace on their phones but misplaced the keys.

Fragmentation of phone-based memories produces friction—as the number of apps and formats increases, memories clash and divide, hide and surface unintentionally, pile up endlessly, and expand across more and more apps and platforms, all while increasing demands on our brain-based memory to recall where things have been saved.

Social Memories

What could be more personal than a memory? And yet, our findings illuminated the growing trend of socially blended and distributed memory practices of creation, curation, and recall. Biologically grounded memories are social in nature, too, to an extent (Hirst & Echterhoff, 2012). Joint experience, conversation, and reminiscence alter and expand narrative and semantic memories. Additionally, collective memories are anchored in shared spaces and widely disseminated narratives (Halbwachs, 2020). But ubiquitous digital tools open up a bevy of new and fundamentally social dimensions to recording and subsequent remembering.

Users are increasingly engaging in sharing and collaborating on memory practices, socially integrating traditionally isolated and individual information. Social media platforms, messaging apps, and collaborative tools and features have become essential channels for sharing and documenting life experiences, leading to the hybridization of personal and group remembrance. For example, Apple's notes program allows for direct collaboration with other users: lists of things to remember become not just shared but jointly constituted—or altered. iPhoto allows folder "owners" to add other "editors" who can add, edit, and delete images. Instagram has become not only a way for people to share photos but also a socially accessible repository of the past (with fairly poor and cumbersome information-seeking features). Finally, users can crowdsource recall of past events, or probe for greater detail and collective evaluation on platforms such as Reddit (Brabham, 2013). The shift towards socially embedded memory practices raises intriguing questions about how individual memories intertwine with group and even larger collective narratives and how they are shaped and influenced by social interactions.

Idiosyncratic Memory Strategies

Novel information-seeking is relatively similar across users. People use Google or TikTok or ChatGPT in more or less similar ways. But backward-looking information seeking—looking for memories and other kinds of previously saved information is far less uniform. Smartphone memory systems are idiosyncratic. The idiosyncratic nature of mobile memories also posed a significant challenge. The rapid accumulation of data overwhelmed users, leading to a vast amount of information that was only theoretically re-accessible, not practically. As a consequence, many memories became involuntarily forgotten, buried in the vast digital landscape within, so to speak, our smartphones.

Some users we spoke to simply remembered the app associated with the memory they were looking for and the age of the item they sought, i.e., when in the past, the memory was encoded. This type of strategy would often lead to endless scrolling through messages or photos using a rough reckoning of time. This strategy was often in vain as the sedimentation of the past (and decay of the exact time in question) became too much for users to find what they were looking for. Indeed, one double-

edged sword of the smartphone archive is that, unlike biological memory, unimportant ephemera are not ephemeral—unimportant memories persist forever unless the tedious task of deletion is carried out.

Other users turned to their search bars. They might search for fragments of what they were looking for within an application's search feature or, in some cases, they would use the "spotlight" feature on iPhone that searches across their files, photos, and the web. The latter was often very unsuccessful.

Participants expressed a sense of overload in the face of their ad hoc memory strategies, where the sheer volume of information made it difficult to discern which memories were truly worth preserving and revisiting. The prevalence of digital clutter, coupled with the absence of an easy, effective, and unified way to find what users were looking for, posed a significant barrier to maintaining a coherent and meaningful memory archive. Pictures of a cafe Wi-Fi password sat on the same level as important life moments such as a first date with one's now life partner. Phones can help us to remember everything but not to sort out what's worth remembering.

The instantaneous capture and storage of every moment allowed users to record a plethora of experiences, yet also raised questions about how these constant records might alter the way memories are constructed and remembered. The always-on nature of smartphones created a sense of continuous documentation, altering the lived experience and influencing users' sense of presence and immersion in the moment.

Overall, our research sheds light on the intricate landscape of memory management among smartphone users, highlighting fragmentation, socialization, and the idiosyncratic nature of memory as critical factors contributing to temporal friction. Understanding these challenges offers valuable insights into designing more effective memory systems and technologies that cater to the evolving needs of users in this digital era. As smartphones continue to play an ever more central role in shaping how we experience and remember our lives, addressing these challenges becomes essential to fostering a more mindful and purposeful approach to memory preservation and retrieval.

DISCUSSION

The findings from our research shed light on critical aspects of mobile memory storage and retrieval, highlighting the stakes involved, the emerging need for improved tools and interfaces, and the profound impact of our study on existing assumptions and problem recognition.

The exponential growth of re-accessible data presents significant challenges for memory retrieval among smartphone users. As memories become scattered across various content domains, retrieving them becomes increasingly difficult. To address this issue, the development of improved retrieval tools and user-friendly search interfaces becomes imperative. By facilitating more efficient memory organization,

these tools can alleviate the burden of navigating fragmented memories and enhance the user experience.

The socially blended nature of mobile memory storage and retrieval underscores the necessity for more collaborative and social memory tools and interfaces. As users increasingly engage in sharing and collaborating on memories, there is a demand for platforms that support collective reminiscing and co-creation. However, this trend also raises concerns about privacy and data security. The blurring boundaries between local and cloud-based storage, as well as private and public sharing, call for robust measures to safeguard user data and maintain trust in memory-related technologies.

Our research has had an impact on the understanding of memory practices in the context of mobile technology, revealing previously invisible problems and challenging long-held assumptions.

Firstly, prior to our study, information seeking was primarily viewed as a process of discovering new information. However, our research has brought to light the growing significance of past and persistent information. The management and retrieval of memories, which were previously overshadowed by the focus on seeking new content, are now recognized as crucial aspects of the user experience.

Secondly, the issue of mounting smartphone-based memory problems for most users had not been adequately recognized before our research. Our study has successfully drawn attention to this significant issue, elevating it to the forefront of organizations' thinking. By acknowledging and addressing these memory challenges, designers and developers can craft solutions that better cater to users' needs and foster a more intuitive, relevant, and timely memory experience.

Other industry researchers have investigated smartphones, time, and memory (Guth, 2022; March & Fleuriot, 2005; Lander, 2012; Gronmo, 1989; Gibbs, 1998; Rangaswamy & Yamsani, 2011). But the matter of smartphones as memory systems has largely been overlooked. By combining theory and original ethnographic research, we were able to bring this issue to the attention of a large organization such as Google, which is positioned to create solutions for billions of users, improving their memory access and literally increasing their human capacities and sense of self.

In conclusion, our research has contributed valuable insights into the complexities of mobile memory storage and retrieval, which is now, for most of the world, an essential part of memory in general. By highlighting the stakes involved, identifying emerging needs, and challenging conventional assumptions, we hope to inspire the development of innovative memory tools and interfaces that enhance the way users interact with and cherish their memories in the age of ubiquitous mobile technology.

While it was beyond the scope of the current essay, future research would do well to investigate not only memory, but the much more difficult problem of the interplay between past, present, and future in our digitally mediated worlds. Philosophical research can, again, help to provide a foundation for empirical industry

investigations to draw upon (Bergson, 2014; Husserl, 2019; Heidegger, 2010). Additionally, questions about privacy, data, and advertising raise serious ethical concerns related to business models—and opportunities—that rely on leveraging users' digital memories (Zuboff, 2019; Harcourt, 2015).

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Fluid Friction

The Case for Friction in Public Safety Design

JOSHUA BURRAWAY, *Motorola*

I DON'T KNOW WHAT TO DO…

The moment she heard the beep come through her headset, Tess switched gears immediately. Moments earlier, she'd just wrapped up a non-emergency 101 call with a man who had found himself face to face with a weasel in his back garden. She and her colleagues had been shaking their heads, chuckling away in disbelief at some of the benign, decidedly non-emergency situations that are beamed into their ears – stray cats urinating on front lawns, a neighbor's tree trespassing across a garden fence, unanticipated weasels. There was nothing benign about this call though. The man on the other end, Sid, was inconsolable. He sounded elderly, soft and gravelly at the same time. His son had assaulted him and threatened to kill him. Where was his son now? Asleep on the sofa, passed out drunk. Sid didn't know what to do anymore. He loved his son – what father doesn't? – but he couldn't handle it anymore. He was terrified of him, especially when he'd been drinking. His son is a martial arts expert. A violent man, he repeats, over and over. Tess tries to keep Sid calm. The elderly voice is a torrent of grief, pain, and regret. But Tess needs to keep Sid focused. She needs to know the address. She needs to know the nature of the threat. Already, she's heard enough in these first few seconds to mark the call as the highest priority – her controller on the other side of the room dispatching officers to the address immediately. Sid wants to tell the whole story – which tumbles out of him in fits and spurts. How things took a turn when his wife died last year. How lonely he's felt. How much he wishes he could help his son. How much he loves him. But also, that he's afraid he'll wake up from his drunken stupor and kill him. Tess, though, doesn't have time for the whole story. She's assertive, cutting Sid off to get what she needs. His son's name and date of birth. The layout of the house. How much he has drunk. His attitude towards the police. Whether Sid has anywhere to hide until the police arrive. I don't know what to do, Sid repeats, lost in the paralyzing reality that he has been forced to call the police on his own son, knowing what this will mean for what little remains of their relationship. Tess has gotten the information she needs to wrap up the call, satisfied that the officers who arrive on scene have the context they need to make an optimal risk assessment. Tess takes a deep breath, finally allowing her tone to shift into a gentler, more compassionate register. She asks if Sid is okay. He doesn't answer. Instead, he sobs. She says she's sorry that this has happened to him, reassuring him that help is on the way. She tells him to call 999 if anything changes. The call ends and Tess takes another deep breath, waiting for the next beep.

INTRODUCTION

The vignette above concerns a single emergency 999 call from a period of ethnographic research carried out in a UK-based Force Control Room (FCR) – the place where call operators take emergency and non-emergency calls from the public.

During this project, I was plugged into the headsets of various call takers who made up the FCR. As a UX (User Experience) Research lead for Motorola Solutions, my assignment for this particular project was to understand how call takers did their jobs. This meant mapping out their workflow, identifying their needs and pain points and, more broadly, giving an analytical language to the cultural, social, and institutional context in which they operated. The aim was to take these ethnographic insights and use it as scaffolding to design and develop a new kind of software to help call takers better manage their calls, triage their callers, run data-base searches and more broadly build new efficiencies and interoperabilities into their existing ways-of-working.

Squint, and the above process tracks like most UX research projects in the software development space. Structurally speaking, that much is true. After all, UX research is fundamentally about observing and questioning users as they interact with products and systems, teasing out needs, goals, motivations and pain points, making sense of these insights in the context of product and/or system usability, and then translating these insights to inform more human-centered design (HCD). This notion of human-centered design is something akin to the moral dogma of the UX field. Its purpose is to ensure a humanistic lens sits at the center of the design process, such that a person's needs or goals, as well as the broader context of their usage, are used to underpin and drive design decisions and development. It is not difficult to see, then, how anthropological methods – with their intrinsic focus on context, culture and behavioral nuance – have been so readily adopted within UX circles in the question for deeper user-centricity. Whilst this explicit foregrounding of the user marked a radical break from previous approaches – which tended to be informed by a designer or product manager's (typically limited and often biased) imagination of user needs – the subsequent ubiquity of the term has led to blindspots. Indeed, one of the pioneers of HCD thinking, Donald Norman (2005), has leveled just such a critique. In Norman's eyes, the dominance of the HCD model has fostered a kind of epistemological laziness, with many of its fundamental principles no longer critically evaluated as part of an evolving intellectual genealogy. This paper echoes Norman's critique that a number of fundamental presuppositions that orbit the HCD paradigm have become so self-evident as to remain critically unexamined in design circles, thereby impoverishing the field's capacity to meaningfully evolve and explore new ways of thinking.

The presupposition – not mentioned in Norman's critique – that I want to focus on in this paper is the concept of "frictionless" UX. This relates to design approaches that aim to make the user's experience of software as fast, smooth and effortless as possible. Couched in the language of HCD, the design focus is on removing anything that might impede, distract or slow down the user as they try to complete a particular task. In no small part, this often-unquestioned ethos reflects the history of modern design's intimate ties to the consumer sphere, which has increasingly fetishized convenience, comfort and satisfaction as the core human

values that should be elevated in a person's experience with a thing, physical or digital. Frictionless-ness, then, becomes a kind of catch-all design model for this cluster of values. The result of this is that its perceived opposite – friction – becomes de facto devalorized, becoming a shorthand for user experiences defined by frustration, imposition and unmet goals. This, though, is a very limited understanding of friction or, better yet, the work that certain modalities of friction can do.[1] Here, the point is not that we should be throwing the baby out with the bathwater and aim for "frictional" design at the expense of frictionless. Rather, instead of seeing them as opposing forces, we should instead consider them as *obverse* – two sides of the same coin, with a shared edge. This kind of reframing can help us more expansively think about the way that frictionless and frictional affordances can coalesce to produce more meaningful forms of user engagement. This is especially important, as this paper will demonstrate, when thinking about UX within the domain of public safety.

Public safety is, unsurprisingly, a markedly different world from the consumer sphere. For one, those who work in this field are not using its software as an expression of market preference, tied in some way to their social identities and/or individual tastes. They are using it because they *have to* – their ability to do their job depends on these pieces of software and the systems they in turn are built on. Of course, public safety professionals are not the only class of workers who have to use software programs to successfully execute their professional duties – far from it. Where they do differ, however, is in the stakes of *not* doing their jobs, or even simply doing their jobs sub-optimally. If an HR specialist doesn't correctly structure a compliance module, or an academic forgets to upload a lecture to the student intranet, there can certainly be consequences – embarrassment, legal issues, perhaps even dismissal. None of these consequences, though, are life and death. But when a call taker like Tess doesn't flag – for whatever reason – to their controller that the suspect in question has a history of violence towards police and owns a gun, that can have fatal consequences. Indeed, the public safety field is littered with these tragic cases. In many of these cases, it is not so much an individual error that is at the root of the tragedy, but rather a system failure, of which software and digital technologies are an increasingly prominent part.

This, then, is the realm of hard choices, of ethical and moral chasms, of cognitive and emotional overload. It is also a uniquely fluid realm, defined by hyper-contingency, fluctuating paths and competing exigencies. In this realm, friction is not synonymous with failure, but rather an integral aspect of the fluid dynamics of emergency situations. Public safety professionals – notably emergency dispatchers and police officers – are constantly being bombarded with information, from multiple angles, across multiple technological systems and in dynamically changing social and relational contexts. This information is often incomplete, contradictory, and fiendishly difficult to absorb and interpret. Not to mention laced with serious risk. Contending with these multiplex surges of information means that there can

never be one single "unified" user experience or flow to design for (compared to, say, the online shopper who is looking for the most convenient way to browse and complete a transaction). As the remainder of this paper will show, frictionless paths – where speed is of the essence – must coexist with instances of interruption, where frictional affordances stop users in their tracks, demanding new modalities of attention and deliberation. There is value in friction – so long as it is harnessed in the right way, in the right balance, and in the right circumstances. Indeed, there are voices within the design literature that have begun to think in this vein, notably through the concepts of "slow" and "reflective" technology (Hallnäs and Johan Redström 2001; Sengers et al. 2005) as well as "uncomfortable design" (Benford et al. 2012). Broadly related, these principles hinge on the idea that activities that are less efficient, more difficult, and even actively uncomfortable can still add value and enrichment to the user experience. Building on this body of work, Cox et al. (2016) have discussed the value of instilling "microboundaries" within interaction design. They use this term to denote small obstacles, digitals speed bumps almost, that slow people down by creating "micropauses" that snap them briefly out of autopilot and encourage more agentive, mindful action. Ericson (2022) echoes these principles in a recent paper, making the case that rather than reflexively removing friction, we should be thinking about how we might intentionally design appropriate modalities of friction, grounded in a deeper understanding of what experiences and goals are most meaningful for people engaging with the system.

The aim, then, of this paper is threefold. First, it is to build on the literature cited above by infusing a deeper sense of the ethnographic, which it currently lacks. This is because, as I intend to show, few methodologies are as capable of tracing the boundaries between meaning, agency, context and lived experience. Second, it is to explore – through two distinct ethnographic cases – how different modalities of friction manifest in public safety contexts, especially in situations that are mediated by digital communication technologies. Third, it is to outline how these ethnographically informed analyses might inform novel innovations in public safety software design patterns (and perhaps software design more broadly). To achieve this, I develop the conceptual lens of "viscosity" to illustrate the relative value of friction in dynamic, fluid situations constituted by multiplex flows of information. This allows us to envision friction on a "viscosity spectrum" of design interventions that can be applied in high-stakes public safety contexts, with both micro and macro implications.

The two cases I present in this paper seek to thread the needle between the micro and macro, offering two distinct yet interrelated lenses through which to apply the concept of viscosity. The first concerns the vignette that opened this paper. Here, a deeper analysis of Tess' workflow captures the need, at a micro-interactional level, for low- and high-viscosity design to co-exist as call takers balance the needs of their callers against the risks posed to responding officers. The second case concerns the macro-level impacts of "garbage data" on police operations. This case illustrates

how, as digital technologies become more prevalent across all aspects of front-line policing, high-viscosity UX design patterns in police reporting software have the potential to dramatically improve data quality, mitigating some of the "vicious cycle" ripple effects that are linked to so-called "garbage" inputs. Before delving into the ethnographic cases sketched out above, I unpack in greater detail the concept of viscosity as a means of unsettling the orthodoxy of frictionless UX design.

UNSETTLING ORTHODOXIES: VISCOSITY

Anthropology, as recent debates in the ontological and phenomenological turns have shown (Holbraad and Pedersen 20187; Zigon 2018), is not just about describing cultural worlds as they are, but rather what they *could* be. According to this argument, it is the ethnographic encounter, as an exposure to radical difference, that shines a light on our own conceptual inadequacies. It is an invitation to go beyond translating otherness into our own terms, and instead harness the destabilizing spirit of that alterity to create new conceptual and analytical paradigms. To imagine, as Povinelli (2012) might say, to take seriously the possibility of making the world *otherwise*. In this regard, scholars in this space have much in common with UX practitioners, even if they are speaking very different languages. Still, the analytical and perhaps even spiritual impulses of the "otherwise ethnographer" and UX practitioner are broadly similar – to imagine and bring into being different human possibilities, inspired by the needs, beliefs and perspectives of those who are often radically different from themselves. For this to happen, though, a new vocabulary is required to fill the vacuum left in the wake of ethnographic exposure which, if sufficiently glaring, will often leave our own orthodoxies in tatters. Which is where metaphor comes in. Metaphor, as the philosopher Max Black (1962) has argued, is a tool with which to fill the gaps in our conceptual vocabulary.

Viscosity is such a tool – one that is uniquely fit for the problematising of frictionless UX, a metaphorical orthodoxy that has become so entrenched in designer lexicon as to become an unquestioned assumption. The risk, as Mattingly (2019) and others have argued, is that when concepts ossify into doxa or "second nature," they reproduce themselves in such a way that we lose track of their blind spots and, often without realizing, deny ourselves the room to creatively experiment with different ways of thinking. Put another way, even the freshest bread goes stale in the end. We should, she argues, always be looking to unsettle and challenge our own orthodoxies. To keep baking fresh bread or, in business lexicon, to innovate. Ethnography, from this standpoint, is a core ingredient of innovation (which always begins with thought).

Viscosity, then, offers a new way of thinking beyond the orthodoxy that frictionless UX represents the zenith of user-centricity. Borrowed from the discipline of fluid mechanics, viscosity is a type of friction – understood as a force that opposes the relative motion of two surfaces in contact. When lighting a match, for

example, friction between the matchstick and the striking surface causes the match to ignite. In fluid contexts, viscosity is a property of fluids that describes their resistance to flow. The higher the viscosity of a fluid, the greater the friction between the fluid and the surfaces it is in contact with. This is because, the more viscous a fluid is, the trickier it is for the fluid's molecules to move past each other. Honey, for example, has a higher viscosity than water – it literally pours at a slower rate. Hence why stirring a pot of honey is harder than stirring a glass of water – the molecules in honey are more densely packed together than the water molecules and thus more difficult to move past one another, which in turn creates more "drag" on the spoon.

Returning briefly to the ethos of frictionless UX, it is telling how often this aim is in service of so-called user flow. Awash with liquid imagery, the user is imagined as a kind of digitally embodied flotsam, carried along on the gentle river currents of the interface, sometimes detouring through different tributaries, but always arriving at the same predetermined destination, their satisfaction with the flow of their "journey" intrinsically related to whatever obstacles they encountered and/or navigated along the way. The problem with this low stakes, consumer-centric conception of flow is that it bears little resemblance to public safety contexts. In the above image, the (intended) user flow follows a smooth, consistent, efficient pace, the end result is pre-known, and any human interactions that occur along the way are, in relative terms, extremely low stakes. This, though, bears little resemblance to the flow that public safety users experience. Or rather flows, plural.

TURBULENT WATERS

Let us first consider the multiple, often contradictory flows that constitute Tess' work, in particular as it relates to her interactions with the digital and technological systems that shape the immediate context of her experience of call taking. In truth, her job title itself is something of a red herring. This is because call takers don't take calls. Well, they do in the technical sense that they receive a call that is routed through to their workstation. From that moment onwards, though, they are *triaging complex situations* – rather than taking singular calls. Triaging because, at heart, call taking is about making a risk assessment, based on their interpretation of the fragments of information they receive, to determine the urgency of need. Complex situations because, situations are not bounded, singular things. Rather, they are dynamic, heterogeneous assemblages of persons, objects, practices and affectivities that are in constant flux (Zigon 2015). Call takers know this all too well. Things can, and do, change in an instant. An assailant who initially fled the scene returns. A person witnessing a fight suddenly notices one of the involved parties holding a weapon. In Sid's case, his son could wake up at any moment to hear him on the phone to police, tipping him over the edge into another violent, potentially homicidal rage. Hence why Tess must be so assertive with Sid in this kind of situation. His loneliness in the wake of his wife's death; his deep moral ambivalence about having

to call the police on his own son – these are essential, uncontainable parts of Sid's story, quite literally bursting out of him over the course of the call. To Tess, though, they are ultimately peripheral. It is the immediate context of the threat that matters. She needs an accurate location. She needs to summarize to her controller what has happened. She needs to make sure it has the right priority level.

This is where the relative viscosity of the user interface matters – both within systems and between them. The more efficiently Tess can move between different data fields and transfer any narrative updates over to her controller, the better. Every second where Tess is forced into extra "mouse work" to jump between different fields or systems, every time she has to jump between one window and another, every time she has to re-orientate herself – these transition "jumps" create a kind of drag. And, as I sit next to Tess and observe her in full flow, there is plenty of jumping. In the course of a single call, Tess might have to jump between her CAD (computer aided dispatch system) where she records and prioritizes information from her caller, her localized RMS (record management system) where she scans data-bases for intelligence on involved entities (persons, property, vehicles, etc.), the PNC (Police National Computer) where she can access national level information, her firearms database to search for any links to known firearms, her mapping system to establish and search for relevant locations, her telephony system through which she manages her call and can conference with colleagues, any CCTV systems relevant to the incident, plus any word processing systems she might use to take rough notes. This is to say nothing of the jumping she is doing *within* each system as she moves between different features, functions and data fields. Concurrently, Tess must also maintain emotional control, develop rapport with the caller, skillfully manage any distress or hostility, and continuously organize what she's hearing and analyzing into a coherent, intelligible story.

The connective tissue between and within these disparate systems[2] is far from optimal, with the ecosystem as a whole lacking the kind of joined-up design thinking that might accurately reflect a call taker's workflow. As Tess puts it, *"we're constantly fighting against the software. You can tell a call taker was never asked about any of this when they designed it."* Faced with this intrinsic lack of user-centricity, Tess – like the rest of her colleagues – have learned how to improvise. Her workstation – spanning three screens – is fully customized, with different systems homed in different parts of each monitor. It's a kind of UI feng shui that allows the different systems she depends on to reflect her particular way-of-working. She knows the geography of this set-up inside-out, the screens and their embedded elements an extension of her embodied cognition and dexterity. This, then, is testament not to the slickness of the system's design (far from it), but the intrinsic adaptability of human beings as, through practice and repetition, they develop their own modalities of mastery and expertise, such that workarounds become, in the end, the most efficient way to get the job done (Norman 2008). Here we can see how, for all the ingenuity and embodied praxis (Merleau-Ponty 1962) of her workarounds and feng shui, there is a viscosity

issue. Namely that, for this particular workflow, things are too viscous, creating the kind of drag from which inefficiencies emerge. Cumulatively, these inefficiencies ramp up a call taker's cognitive load (the mental effort required to process information), increasing the likelihood of fatigue and impaired decision-making. Here a lower viscosity design – complete with an optimized information hierarchy reflective of her critical priorities – that enables Tess to navigate between fields and across systems with limited drag would be ideal.

At first glance, then, we are back in the realm of the "frictionless" interface. And this might be true, if that were the only thing that Tess was doing. In reality, though, call takers are always engaged in multiple workflows at the same time. Like an octopus whose tentacles have separate but interdependent brains, Tess is required to juggle lots of independent and yet intersectional tasks as part of her situational triage. For example, as she keeps Sid on the line and carefully extracts the information needed to form the narrative of events that any responding officers will be reading en route, she is also punching his son's name into her RMS. From what Sid has told her, he is intoxicated, trained in martial arts, has violent tendencies and is potentially hostile towards the police. Of course, none of this could be true. (Indeed, it is not uncommon for people to call 999 and fabricate stories about friends and family members.) On the flipside, Sid's outline of his son's potential for violence could also be the tip of the iceberg. Tess' job isn't to adjudicate on the veracity of Sid's testimony – indeed, as a matter of precautionary principle she must treat each caller as though they are telling the gospel truth and record their words verbatim. Her job, recall, is to triage the situation and provide as much contextual information as she can to her controller, especially as it relates to any possible risks to officer safety. So, when she inputs his son's name into her RMS, it is paramount that any associated warning markers are not missed. In short, these warning markers need to be interruptive by design. They need to quite literally slow Tess down, stopping her in her tracks, if need be, so that she can attend to the information, interpret it and flag it in her narrative. What is needed in this concurrent user flow, then, is not less viscosity, but more.

As it transpired, Sid's son had a history of violent offenses, several involving the use of knives. He was a high-risk individual who posed not only a significant threat to his elderly father, but also to the officers on their way to the address. Here, then, we can see how low viscosity and high viscosity flows mix as part of Tess' triage. The result of this mixing is, to borrow another term from fluid mechanics, turbulence. Simply put, turbulence is a state of conflict. For Tess, it is actually a necessary state-of-being to be thrown into, insofar as the turbulence created by a warning signal forces her, as a user, to stop, take notice, think, and update her assessment. Crucially, though, she does not want to remain stuck in a turbulent state. Rather, what she needs is the ability to rapidly navigate these turbulent waters, transitioning back into a low viscosity flow that allows her to acknowledge, flag and pass on these warnings in the most clear, efficient way possible.

Rather than the predictable, linear flow of the consumer-centric model, the public safety flows described above are more akin to white-water rapids, brimming with turbulent eddies, unpredictable currents and sudden hazards. Just as rafters must deploy their athleticism, deep understanding of the river and technical mastery of their tools, so too must call takers deploy their expertise to navigate their own turbulent waters. And, in the same way that a rafter's paddle is designed specifically for tight maneuvers in white-water, a call taker's technological ecosystem should also be designed in a way that reflects the unique conditions that shape their experiences. Thinking through the conflicting modes of viscosity that emerge at the intersection of their workflow and technological interactions can help us develop a novel and more nuanced UX design language around their needs, moving beyond existing orthodoxies to open up new spaces of conceptual experimentation which can, in turn, spark new practical innovations.

As noted earlier, ethnography – owing to its unique combination of intimacy, immersion, and exposure to human difference – is an ideal methodological engine for such experimentation and innovation. In the above example, I have sketched out some of the ways in which an analytics of viscosity – underpinned by ethnographic observation – can inform design thinking at the micro-level of individual experience as it relates to interaction design within and between digital systems. Ethnography, though, is not only about the micro level. It is also about connecting micro-level dynamics to large, macro-level forces. The next section will explore this micro-macro dialectic further. It hinges on an ethnographic analysis of US patrol officer workflow, drawing on the concept of viscosity to think through data quality issues in police reporting as it relates to the juvenile justice system and police agency operations more broadly.

LITTLE JIMMY

> "If I add mom as a person record on my RMS and list them as a parent of Little Jimmy, when I pick him up again two years later, I just have to search him and get momma's number. When we first encountered Little Jimmy, it may not have been top of mind then, but it will only serve to help me in the future."

In his decade in law enforcement, Officer Turner has had to deal with more than his fair share of Little Jimmies. By this he means young offenders – people below the maximum age of criminal responsibility (typically eighteen years old but this can differ from state to state) who regularly fall foul of the law. Often, they're picked up for petty crimes – shoplifting, vandalism, minor drug possession, underage drinking. Of course, there are plenty of cases where juvenile offenders carry out much more serious crimes. Officer Turner, it is worth noting, is all too aware of how much of juvenile offending is tied to problematic social, economic and family conditions, not to mention mental health issues and an entrenched scarcity of service provision for disadvantaged children and adolescents (Rekker et al. 2015). His sympathies

notwithstanding, his primary job as a patrol officer was to enforce the law, not critique it. In the state of Georgia where he was based, whatever crime a juvenile committed – petty or serious – the protocol for charging them is the same.

> "If we want to charge them, first we need to get connected with the juvenile justice system. Then, we've got to speak with a juvenile case officer. They'll look at the kid's history. They've got a points system. I gotta say, we never understood it, they never told us what it was or how it worked. It seemed wildly inconsistent to us. Anyway, if they reach a certain number of points, they'd be like okay, take him to the Sheriff's, put him in a juvenile holding cell, and then eventually they'd be picked up and taken to a juvenile detention center. But if they didn't meet the points threshold or whatever, then it was please release them to their parents or legal guardian. And that's what happened 99% of the time – release them back to their parents. So I'll be like – Little Jimmy, what's your mom's name and phone number. And he'll be like, hell no – I'm not telling you. When she finds out what I did, I'm gonna be in trouble."

This kind of situation was incredibly common. If a juvenile, as they often did, refused to tell him the names and contact details of their legal guardian, this meant having to dig around in the RMS, searching for any kind of clue or association that might allow them to track down the right person and contact number. This could take minutes. Or, it could take hours. What's more, getting through to the legal guardian wasn't enough. The arresting officer is required by law to place the juvenile directly back into their physical custody.

> "I can't tell you the amount of times where we finally get through to mom. And we say hello Mrs whoever, we've got your Little Jimmy in custody here, he was picked up for doing x, y and z. We legally have to put him in your physical custody. Turns out mom is at work in Atlanta, which is like at least a two-hour drive away. So we're just sitting there for two hours, waiting on momma whilst other calls come in."

These "Little Jimmy" stalemate cases were frequent enough to be a major headache for Officer Turner. The effect, as described above, was patrol officers getting stuck in a kind of operational limbo, morphing into babysitters who were unable to respond to any further incidents within their zone until they had transferred the kid into custody. In turn, this increases pressure on the agency, which has less resources they can deploy. The root cause of this issue is one of data quality. In other words, when juvenile offenders are picked up, the arresting officer is all too often neglecting to collect and record the details of their legal guardian. In part, Officer Turner suggests, this is because these initial interactions with first time juvenile offenders are typically so legally trivial that it doesn't feel necessary collecting parental or guardian details. The problem though – as crime analytics have demonstrated – is that first time juvenile offenders don't tend to stay first timers. A significant majority will re-offend, with patterns of behavior often escalating as they get older. Notwithstanding the major impact that socio-structural forces have in

shaping patterns of re-offending within juveniles, the fact remains that as a patrol officer, when Officer Turner picks up another Little Jimmy whose offense is worthy of criminal charge, but ultimately doesn't meet the state's threshold for detainment and processing, he wants to reduce any babysitting time to an absolute minimum. The quicker he can get hold of a parent or guardian, the quicker he can get back to his primary job – responding to emergency calls.

There are, it should be noted, important variables in terms of how significant an impact a Little Jimmy stalemate will have on an agency's operational capacity. For really small agencies where there might only be two officers on shift at a given time, having one taken off patrol to babysit clearly has a huge impact. In Officer Turner's department, if this situation unfolds during the middle of the day, they might be able to palm off the juvenile to a detective on shift in the office so they can resume their response duties. Whilst this might solve the problem for the officer, it doesn't really solve the broader issue – it just shunts it onto someone else. In this case, the detective has to take responsibility for the juvenile, which detracts from their ability to fully focus on their own investigative work. If it's 2am, then the arresting officer has no way of getting out of babysitting duty. For large agencies that span entire urban areas, they will likely have more resilient human and institutional infrastructure to absorb their Little Jimmies. These Little Jimmies, though, are actually just one instructive example of a much broader problem that impacts police operations. The garbage problem.

GARBAGE IN, GARBAGE OUT

"Garbage in – garbage out" is a phrase you'll often hear in policing circles. It's a colloquial term, common across different industry divides, recognizing how poor-quality data entry drives unreliable and problematic data outputs. As revealed in each Little Jimmy case, it's not just the input of poor-quality data, but any data at all. Absence in, absence out, in other words. Here then, we see how data vacuums create operational vacuums in the form of babysitting juveniles. The operational costs go far beyond babysitting though. As well as being a patrol officer, Officer Turner also worked as an Intelligence Officer – meaning that it was his job to gather, analyze, and disseminate intelligence information to support policing operations. One of the biggest, most frustrating parts of his role was cleaning up other people's garbage.

> "One of my responsibilities as an Intelligence Officer was to read all of the reports that were written the previous day. Many times, when reading the reports, they were not filled out correctly. Either the zone in which the incident occurred was incorrect or blank, or the nature field of the report did not match what the narrative explained, or an officer did not fill in each individual charge that was taken."

What you end up with, in the end, are inaccurate crime statistics. For example, if a traffic stop morphs into a drug bust, but the drug offense doesn't make it into the

submitted record because the primary officer forgets to add the extra charge, that means that at the end of the year, the statistics around drug possession are not going reflect what has actually been happening in the community. This creates two interrelated problems. For one, these are the statistics that get released to the general public. Delivering inaccurate reports that mis-represents the patterns and scales of crime within a community is likely to have a negative impact on public trust which, in America at least, is arguably at an all-time low. Secondly, the amount of crime recorded within a given jurisdiction has a direct on how much funding they receive from their municipal government:

> "So, if I've got horribly underrepresented numbers, it's going to look like 'hey man, crimes gone way down in the city. We can cut the police department's budget. They don't need all this money.' So, they may cut our budget when in reality, because so many stats have been underreported because of poor data input, our crime rates are actually way up here. The city thinks they're way down here. We actually need an increase in our budget to help combat this rise in crime. So just that little mistake adds up and adds up and adds up and we could be looking at a lack of funding. And that also dictates how many new officer positions we may get for that next fiscal year. So, it can have a huge impact on a department."

Arguments over police funding in the US are, quite understandably, emotionally and politically charged. The racialized forces that have long haunted and continue to dog US policing should not be minimized and are worthy of far deeper discussion that can be offered in this paper (*see* Brown and Barganier 2018). Those issues notwithstanding, it is not controversial to say that – wherever you sit on the argument of police funding – agencies across the country are facing huge staffing issues, at both the retention and recruitment level. This places more and more pressure on existing front-line officers, who are dealing with more emergency calls than ever before.[3] On top of that, a lack of mental health service provision and escalating rates of mental illness and social distress has meant that, much to their despair, in many areas it is police officers who have become de facto mental health triage teams for their communities. All too quickly then, we can see how already over-stretched agencies can quickly end up with over-worked and under-trained officers who, as burnout and cynicism become increasingly entrenched, are that much more likely to make poor, even fatal decisions when engaging with members of the public, fanning the flames of an already vicious cycle of mistrust between the police and the corresponding community.

TAKING OUT THE TRASH

Garbage data is not, of course, the only thing driving the vicious cycle outlined above. But it is still one, often overlooked part of it. Overlooked because, in isolation, each datapoint incorrectly entered or neglected feels inconsequential, both

from the standpoint of the officer in question and the system at large. The reality, though, is that these data quality issues are not isolated incidents, but rather a systemic problem that, as I have illustrated, can have serious downstream consequences at both the operational and community level. Whilst UX research and design could not purport to be any kind of silver bullet to the broader, increasingly wicked problem of police-public relations in the US, it arguably does have a role to play in the garbage problem.

This is because, to describe the garbage problem as a data quality issue is to miss the fact that, beneath the hood, this is more accurately a behavioral issue. Moreover, it is a behavioral issue that emerges out of a particular technological and situational context. The field of UX, at its core, is about trying to understand the way in which human behavioral dynamics and technologies co-shape one another, the end goal being to develop new systems that benefit not just the users of one particular element of that system, but the socio-technical system as a whole. Ultimately, each agency will have its own socio-technical configuration through which officers collect, enter and submit data into their RMS systems. Typically, this will involve a combination of paper-based and digital technologies. Most officers, regardless of where they are, still carry a notebook to record key details about an incident. Many will use these notebooks as the foundational text for their reporting duties when they get back to their computer at the station. Others carry their reporting forms with them in the field. Others might rely more heavily on body-worn cameras to capture details and then go through the footage later on. In truth, most officers will cobble together their own way of combining digital and analog technologies to get their jobs done. Or, more accurately, *to get their jobs done as quickly as possible*. The unpredictable, time-sensitive, often overwhelming nature of patrol work, combined with ever-increasing bureaucratic "paperwork" responsibilities, means that officers, by and large, look for the path of least resistance when it comes to completing their data collection and reporting duties. So, when an officer is confronted with a juvenile who has committed a petty crime and a victim who doesn't want to press charges, it's easy to see why, given the context they are swimming in, they might choose not to bother taking any parental or guardian details. Police officers, like all humans, are also not immune to the experience of temporal discounting – the psychological tendency to prefer smaller rewards sooner (saving a few seconds by not having to fill in an extra part of a form) rather than larger rewards later (not having to dig through an RMS for two hours to find a young offender's guardian's name and contact details).

Here, then, we can see where the concept of viscosity might be helpful. Indeed, as more and more agencies transition their patrol officers from paper-based approaches into digital applications underpinned by emerging technologies (such as machine learning), a new set of potential affordances and behavioral levers begins to open up. Imagine, for example, how the interaction design of a digital form might create inflection points of high viscosity that, for a brief moment, create drag on an officer's flow, encouraging them to input a piece of information – like a guardian's

name and number if the person involved falls into the juvenile category – that can drive major efficiencies downstream, be it for their future selves or, more likely, their future colleagues. There is also an opportunity for macro data analytics to identify which "garbage" inputs have the biggest downstream impact in terms of statistical dissonance, operational vacuums, and extra "clean up" labor. Identifying the reporting fields with the highest future operational costs could provide a strategic roadmap to guide UX effort around where micro-behavioral nudges and high-viscosity design might have the biggest impact, allowing product development teams to work out the optimal trade-off between user friction in the short-term and long-term operational gain (of which those same users are fundamentally part).

CONCLUSION

This paper has demonstrated the way in which ethnographic research can work as a methodological catalyst to upend established orthodoxies within UX design, in the process allowing us to experiment with new modes of design thinking and innovation. The concept of viscosity – taken here as the relative amount of friction in fluid situations where multiple, often conflicting user flows must co-exist – is one such example. Through this concept, I have sought to challenge the established wisdom that "frictionless" design is intrinsically human-centered. Being truly human-centered means understanding, analyzing and engaging with the messy contexts and conditions – the worlds – that human beings are always already embroiled within. In the particularly fluid worlds inhabited by public safety professionals, frictionless and frictional affordances in the software they rely on need to exist cheek by jowl, undergirded by a design language that authentically reflects this reality. Viscosity has the potential to be part of this emerging vocabulary. As the two ethnographic examples at the heart of this paper have illustrated, building differing degrees of viscosity into interaction design is essential in public safety contexts. As Tess' vignette illustrated, the need for a call taker to move at speed to protect a vulnerable caller is always counter-balanced by the need to protect any responding officers, which – depending on the nature of a given situation – may simultaneously require a slowing down and shift of focus to ensure that any risks or hazards are not inadvertently glossed over. In these unpredictable, time-sensitive, ethically charged situations where lives are literally on the line, finding the sweet-spot between low- and high-viscosity design patterns could not be more important.

In Officer Turner's case, the temporality of "garbage in, garbage out" is different. Certainly, it lacks the immediate urgency and danger associated with overlooking a warning marker during a high-risk call. Data quality issues are a slower burn, their impact not so much explosive as implosive. Poor data quality corrodes from the inside, accumulating and accumulating until the downstream costs eventually fold back into the lived experiences of front-line officers, fanning the flames of burnout, impaired decision-making and, in the end, playing its own unique, all too hidden part

in the deterioration of public trust. The conceptual language of viscosity – informed by a mixed analytics of ethnographic research and big data – can enable UX design to do its part in mitigating the impact of garbage data, threading the needle between the micro-dynamics of human-digital interactions and macro-level forces that shape how police agencies are run and governed.

As ethnographic methods and anthropological frameworks become more integrated within the field of UX, the opportunity to unsettle our thinking as UX practitioners must not go unseized. The public safety space is just one domain where orthodoxical destabilization and ethnographically-inspired experimentation with new design languages can yield truly impactful innovations, benefiting not only the users we serve, but the discipline that serves us.

NOTES

1. In truth, it seems reasonable to suggest that when most UX practitioners use the term friction to describe what happens when something gets in the way of a user completing a desired action/goal, they are more accurately referring to obstacles. The difference between an obstacle and friction is subtle but important. Whilst both concern the impediment of movement, friction concerns the relative dynamics between surfaces, whereas an obstacle concerns the experience of being blocked by something. Friction can be reduced, altered or eliminated, whilst obstacles can only be moved or avoided.

2. Beyond the multiple user flows that relate to Tess's movement through the various user interfaces, there are also several external, cultural and relational flows that are constantly criss-crossing into her lived experience as a call taker. She and her caller are connected in flow – the flow of information and mutual regard. She and her colleagues are engaged in the flow of mutual support. Call takers talk about having one ear for the caller, the other for the room, always making sure they are available to support their colleagues, whether that's running an RMS search or grabbing a supervisor. There are also flows of power and policy to contend with – the cultural flow of expectations as supervisors move around the FCR and monitor the call takers, their presence actively funneling the flow of particular operational policies and departmental values.

3. According to the National Emergency Number Association (NENA), the number of 911 calls in the US increased by 15% from 2017 to 2021. This increase is due to several factors, including: the increasing population; the increasing number of cell phones; the increasing complexity of emergencies; and the lack of social and mental health services for people in crisis, who end up relying on 999 as a form of emergency care/crisis intervention.

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Favoring Friction

Examining Hotel Browsing and Buying through the Lens of the Bazaar

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This paper examines the domestic market for hotels in India and attempts to solve what at first appears to be a puzzle: in the context of a highly digitized market, with plentiful information about hotels and their prices available online, the majority of bookings are made offline and involve time-intensive, socially-mediated browsing and buying activities which we term "bazaar behaviors". By engaging with the anthropology of bazaars and markets, in particular the work of Clifford Geertz, we show that the qualities of hotel rooms as commodities, and the cultural and price information logics at play, explain why Indian travelers favor friction in the search and booking process. While this paper is concerned with one specific commodity type, in one specific (albeit highly plural) market context, we conclude by outlining how we can generalize our analysis of bazaar behaviors to enrich our understanding of online commerce more widely. Keywords: bazaar, markets, Geertz, India, search, pricing, hotels, travel, ecommerce

> "A main characteristic of our society is a willed coexistence of very new technology and very old social forms."—Raymond Williams, *Problems in Materialism and Culture*

INTRODUCTION

Sachin, a 22-year-old from a small town east of Mumbai, now living in the city's northern suburbs, was excited to travel with his male friends to the beach resort state of Goa. It would be the first trip the group had taken together, eagerly anticipated and carefully saved for, and as such the stakes were high.

Sachin took on the responsibility of figuring out where the group should stay. As a member of India's digitally savvy youth, he is the proud owner of an iPhone 6 on which he has a variety of travel-related apps. He was determined to find a decent hotel in a great location, close to bars, restaurants and beaches, while also mindful of his group's tight budget.

A month before the trip, research began in earnest. Sachin trawled YouTube travel vlogs to understand the particulars of different locales. After deciding on a specific destination, he turned his attention to places to stay. He searched for hotels online using both Booking.com and the indigenous app MakeMyTrip, comparing many hotels to get a sense of the kind of quality he could expect for his budget. Narrowing his search, he identified three promising options that met his criteria.

Sachin phoned each hotel to confirm the facilities and availability listed online. Content that he had carried out due diligence, he reserved all three hotels on Booking.com without paying in advance.

After traveling to Goa on an overnight train, the group visited each reserved hotel in turn. They surveyed the surrounding area, the general ambience of the hotel, the "crowd" staying there, and the quality of the rooms. A clear favorite emerged. Satisfied that they had the right hotel in their sights, Sachin discussed the price at the front desk and negotiated with the manager to secure inclusive breakfast. On discovering that the price quoted in person was more expensive than the rate at which he reserved the hotel a month earlier, he informed the manager that he would book via the app, and as he did so, he promptly released the other two advance bookings.

Sachin's story presents a puzzle. India is a rapidly digitizing economy, where over 750 million smartphone users have ready access to all of the information and reservation tools that might be required to book accommodation online. Investing considerable time in advance online research and phone enquiries, yet still arriving without a hotel confirmed and proceeding to spend precious vacation time walking from one hotel to the next to carry out in-person inspections, appears intentionally and perplexingly full of friction.

In fact, Sachin's story is not unusual. In May 2022, Stripe Partners was commissioned by Google to understand the domestic tourism market in India, with a focus on lodging. We carried out four weeks of immersive ethnographic research across six regions of India, meeting over 60 travelers, 10 hoteliers and 24 industry experts. We found that only a minority of travelers finalize their booking online in advance. Using online travel aggregators (OTAs) for price benchmarking, reserving multiple hotels, and evaluating hotels in person before booking were common practices, along with other friction-filled behaviors such as phoning hotels to confirm information found online and negotiate over price, flexibilities and extras. Our observations were supported by large-scale data: a 2020 industry report found that 65% of hotel bookings in India were made offline—over the phone, or as in the case of Sachin, in person (Phocuswright 2020).

This paper explores the apparent conundrum of Indian travelers opting for friction when searching for and booking hotels by using the lens of "the bazaar". Tracing the historiography of the idea from Orientalist trope, via economic orthodoxy through to anthropological concept, we demonstrate the continuing relevance of the bazaar for making sense of present-day exchange behaviors in the travel vertical and beyond.

We argue that Sachin's behaviors are not bizarre but rather bazaar-like, evoking the time-intensive, socially-mediated browsing and buying activities typically associated with physical marketplaces located geographically and historically in "The Orient". Were colonial-era accounts and works of political economy to be believed, then such bazaar-like behaviors might have been expected to "evolve" in tandem

with economic development into more market-like behaviors, with human interaction expunged in favor of seamless online transactions. This is evidently not the case.

At first glance, anthropological theory offers little more in the way of explanatory power. Clifford Geertz characterized the bazaar as a place where "information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued" (Geertz 1978, 29). This does not immediately seem like a description of the online hotel market, where product and price information are plentiful and accessible. However, on closer interrogation, we see that specificities of the commodity qualities, cultural logics, and price information context in question paint a different picture—one that looks increasingly bazaar-like.

We, therefore, reanimate and extend this classical anthropological concept, showing its continuing relevance for understanding economic behavior in the digital age. As Geertz revealed the internal logic of "backwards" browsing and bargaining in the souks of Morocco, we demonstrate the eminent rationality of Indian travelers, like Sachin, in favoring friction when searching for and securing accommodation.

While this paper is concerned with one specific commodity type, in one specific (albeit highly plural) market context, we conclude by proposing that our analysis of bazaar behaviors might be generalized to enrich our understanding of online commerce more widely.

SECTION 1. BAZAARS AND MARKETS

1.1 The Bazaar as Orientalist Trope

The bazaar is a persistent figure in popular Western representations and the social imaginary of the Orient. Accounts of the Orient by travelers, ancient and modern, and feature films and television programs, frequently include vivid portraits of crowded, boisterous and labyrinthine spaces which overload their visitors' senses.

Representations of the bazaar as more than mere marketplaces, but sites infused by "bizarre encounters, exotic commodities, and mystifying protocols" (Sarkar 2022, 63), have a sweeping historical and geographic range. The word *bazaar* itself is of Persian origin, was adopted into Hindustani and Turkish, and came to English via the Italian *bazaara*. In its middle and west Asian contexts, bazaar referred to marketplaces of both a permanent and more transitory nature. The word was adopted in Malay (*pāsār*) and repatriated to India with more mercantile connotations. The word's circulatory range, Sarkar concludes, corresponds neatly to colonial (and current day) notions of the Orient (Sarkar 2022, 64).

If bazaars are "Other" to the Western market in sensorial and spatial terms, they are portrayed as very different in social terms too. The cast of characters to be found there is varied, and not all are simply there to buy and sell, or to do so honestly; as Sarkar notes bazaars are typically rendered as spaces inhabited by "merchants and buyers, touts and brokers, even healers and tricksters" (Sarkar 2022, 64). It is a space

thick with social relations, where long-term and trusting relationships link traders and their clients (Geertz 1979) and co-exist with more transitory and contingent interactions, where honesty cannot be assumed, and trust is yet to be established.

Whatever their other differences, bazaars are usually distinguished from markets by the mode of economic exchange that occurs within them: bargaining or haggling[1] is seen as the sine qua non of bazaars. Haggling is a process of price determination, typically entailing a verbal exchange wherein the buyer and seller negotiate a price acceptable to both for a specific transaction. It is contrasted with the fixed price exchange expected in modern markets, where prices are set in advance by the seller.

Haggling is "embedded in kinship and clientelist networks, affective structures of trust and reputation, religious observations and seasonal variations" (Sarkar 2022, 64). It is the idea that haggling is entangled in "thick" social and kinship relations that makes "economic transactions in the bazaar seem to be so much more—and, by the same token, so much less—than what they are in modern markets" (ibid.).

In other words, because haggling is a feature of economic exchange in contexts that are rich in social, moral and relational terms, it can be starkly contrasted to modes of exchange in which haggling is not (so immediately) evident. The implication is that in the apparently more evolved markets of "the West", economic exchange occurs free of social, moral or other constraints: information about commodities is plentiful and transparent, prices are fixed, and exchange partners are absolved of the need to engage in the sort of practices that define the bazaar.

1.2 The Moral Economy Meets Markets with Moral Authority

We can begin to understand the emergence of the bazaar–market binary by turning to economic history, specifically the history of south Asia and the colonial encounter.[2]

Colonial accounts were written in a period after the market in the West had been through a set of institutional and infrastructural shifts (eg. contract law, and the obligations it placed on trading partners). These were accompanied by conceptual shifts that made values such as self-interest and competition central to the efficient execution of economic exchange:

> "The assumption that the more abstract the economic contracts, and the more effective their stipulations in nullifying sociocultural opacities (social hierarchies, habits and customs, gaps in information, personal histories, etc.), the smoother the functioning of the market, became a governing principle. Emerging technologies, institutions, and instruments [...] abetted and accelerated the processes of disembedding and abstraction, grounding the market's moral authority in disinterested technicity." (Sarkar 2022, 66)

The juxtaposition of two types of trade—one thick with social relations, the other shorn of the complexities of social relations—cast one form as more modern than the other.[3]

One is "traditional and custom-bound, effectual and capricious" (Sarkar 2022, 67), the other modern, rational and objective. In this sense *homo affectus* was contrasted with *homo economicus*. Put differently, economic exchange characterized by the moral authority of the market was distinguished from markets exhibiting a moral economy.[4]

Cast in a temporal frame, this narrative implies a teleology: the bazaar is "discounted as an antecedent, partial, failed, incomplete version of the market; it is simultaneously the market's malapropism, and its eternal not yet" (Sarkar 2022, 67). The implication is that the bazaar should disappear—that its form and associated behaviors will ultimately give way to the market and "truly economic" exchange practices. Such a movement presages the apparently inevitable transition from friction-filled to friction-less transactions.

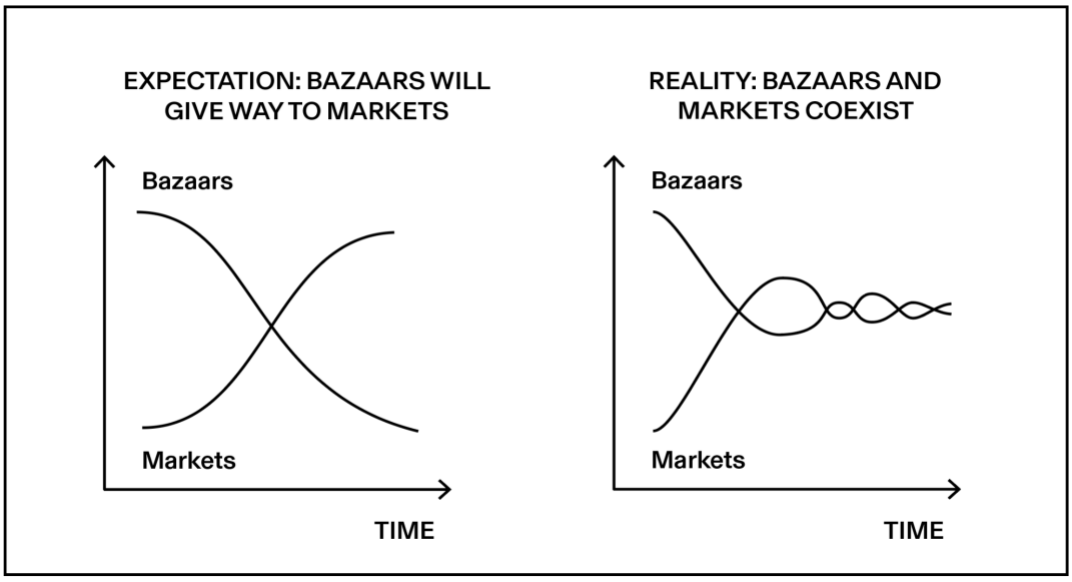

Figure 1. Bazaars and markets: expectation vs. reality

1.3 Bazaars and Markets: The Hybrid Reality

On at least five counts, we call into question the distinction between "pure" economic exchange and more culturally or morally-infused exchange, and the assumption that the latter will give way to the former.

First, recent post-colonial scholarship questions the validity of the assertion that the colonial encounter was one in which socially-infused exchange practices collided with purely economic ones (eg. Ray 1995; Sarkar 2022). Further, and as Dipesh Chakrabarty notes in "Provincialising Europe", the notion of diametrically opposed forms of economic exchange, one more evolved than the other, was central to the broader colonial project, an "historicist argument [that] consigned Indians, Africans

and other "rude" nations to an imaginary waiting room of history" (Chakrabarty 2000, 7).[5]

Second, economic anthropology (eg. Carrier 1992; Miller 1998; Wilk 2018) has consistently demonstrated the deeply social and moral nature of much economic exchange, including fixed price exchange. Contemporary studies of shopping (Miller 1998) and consumption demonstrate that acts of economic exchange in the market are shot through with social, cultural and moral meaning. However, the ideology of market-based exchange acts to obscure that reality, concealing its moral dimensions in a discursive dressing of utility and price-maximizing individuals. Anthropologists Jennifer and Paul Alexander, who conducted fieldwork in Javanese markets (Alexander and Alexander 1987; Alexander 1992), suggest that "the idea of a fair price, based (somehow objectively) on the cost of producing goods pervades the West and obscures our perception of other forms of constructing exchange; price has become associated with the concept of objective value" (Herrmann 2003, 239). In short, the ideology of the market obscures the social, cultural and moral dimensions of exchange.

The third way in which we can challenge the unproblematic opposition of bazaars to markets, specifically, the idea that bazaars are pre-modern versions of pure markets, is to note that bazaars both as spatial or material forms, and as arenas in which distinctive economic practices are present, endure. They continue to be central to the mercantile and consumptive practices of populations across the world. Indeed, there is increasing academic interest in the ways in which they act as interfaces to more globalized markets and brands (eg. Deka and Arvidsson 2021).

Fourth, even in Western markets there are obvious exceptions to fixed price exchange. Bargaining is not uncommon but usually reserved for "big ticket" items such as houses, cars and other items that are purchased infrequently and seen as worth the time cost of negotiation. Equally, the information asymmetries that exist between buyer and seller for certain goods lend themselves to additional investigation by the buyer. Purchases in antique, secondhand shops, car boot or garage sales (Herrmann 2003) might entail some back and forth to agree a mutually agreeable price. In that sense, specific sites of exchange come with the expectation that price is something to be negotiated.

Finally, online commerce—arguably the most "advanced" market form—is not limited to fixed price exchange. Auction sites such as eBay (or local variants such as OLX and Dreembox in India) often seek to accentuate, rather than obscure, the social relations between buyer and seller. Ecommerce sites such as Etsy make the elevation of social relations a defining feature of their proposition, while platforms like Gumtree and Nextdoor accent localized relations. Thumbtack, Upwork and other service-based platforms for tradespeople expect some form of bargaining.

The reality, then, is far more complex—and far more hybrid—than colonial and economic narratives would have us believe. The work of anthropologists, in

particular Clifford Geertz, helps to elucidate the rationality of bazaars and associated social and economic practices.

1.4 Bazaars as Information Systems

Geertz conducted long-term fieldwork in Indonesia and Morocco, with his fieldwork in Morocco exploring in-depth the bazaar or souq in Sefrou, a town in the mid-Atlas Mountains. Like most observers of such bazaars, Geertz was struck by the centrality of bargaining to their operation. However, he sought different explanations of it as a practice, and to see it as part of a broader cultural system. One departure from standard accounts in Geertz's treatment of bargaining was to move beyond thinking about it, first and foremost, as a mechanism for price formation, as researchers such as Victor Uchendu had done:

> "[H]aggling is defined as a process of price formation which aims at establishing particular prices for specific transactions, acceptable to both buyer and seller, within the "price range" that prevails in the market." (Uchendu 1967, 37)

Others stuck to this economically oriented script, seeing it in the context of complex and uncertain social relations:

> "Bargaining […] serves an economic purpose, that is, to regulate prices in societies where suspicion and uncertainty as to the value commodities dominate." (Khuri 1968, 704)

And as they did so, they took their lead from Marshall Sahlins in casting bargaining in a generally unfavorable light, as a modality of economic exchange with negative behavioral dimensions. These observers cast it as "an unsociable form of transaction, because it is always conducted with varying degrees of cunning, guile, stealth" (Khuri 1968, 698).

Geertz's corrective emerged from his interest in understanding bazaars—and markets more generally—as information systems. He was influenced by a new generation of economists who were at pains to destabilize the idea that markets are "complete", or perfectly symmetrical in informational terms. Geertz was building on the seminal work of George Akerlof in his 1970 paper "The Market for Lemons": "Consider a market in which goods are sold honestly or dishonestly; quality may be represented, or it may be misrepresented. The purchaser's problem, of course, is to identify quality" (Akerlof 1970, 495). These treatments of markets sought to highlight the different information available to buyers and sellers.

A more "positive characterization of bargaining begins and ends," Geertz suggested, "with the recognition that [bargaining] is a particular mode of information search, not a means for integrating prices" (Geertz 1979, 104). When people bargain, he asserted, they are seeking information on the nature of the thing being bought. Then, and only then, do they seek to establish its correct or fair price.

> "The search for information—laborious, uncertain, complex, and irregular—is the central expeience of life in the bazaar. Every aspect of the bazaar economy reflects the fact that the primary problem facing its participants (that is, "bazaaris") is not balancing options but finding out what they are." (Geertz 1978, 30)

Geertz's research into bazaars led him to distinguish between different forms of information search: extensive and intensive search. Extensive search is a means of benchmarking price and quality: it helps people survey the options available to them and determine the kind of goods they might expect to receive and for what price. Extensive search entails an initial "scouting" of the stalls or stores of multiple traders to see what sort of goods are on offer, and what price range exists. Having established some ballparks, the intensive search phase is about evaluating if a specific item has the qualities desired. It is the process of exploring the true nature of what is being sold.

> "Search is intensive [...] because the sort of information one most has to have cannot be acquired by asking a handful of index questions of a large number of people, but only by asking (and answering) a large number of diagnostic questions of a handful of people. It is this kind of questioning (and counter-questioning), exploring nuances rather than canvassing populations, that, for the most part, suq bargaining represents." (Geertz 1979, 108)

Intensive search is interactive and conversational, involving "thorough examination and consultation" (Uchendu 1967, 41). Buyers are typically permitted to inspect wares before they make an offer and certainly before they agree a final price and pay. They will likely question the seller to elicit information that is not explicit. Intensive search places a certain responsibility on the buyer to glean all the necessary information before agreeing a sale: "[t]he principle of 'thorough examination' enjoins the customer to "beware" of his choice" (ibid.).

Building on Geertz's work, Alexander and Alexander identified another information seeking behavior: "a process in which the quality of the buyer's information is evaluated" (1987, 54) and used to inform the subsequent negotiation. Their analysis focused on the seller's assessment of the buyer's information quality; however, we believe this idea can be meaningfully applied to the buyer's assessment of the seller's information quality. That is, the buyer uses the very process of consultation and negotiation to assess the quality (and trustworthiness) of the seller's information. We call this meta search.

Beyond revealing bazaars to be information systems, anthropologists also added nuance to the characterization of bargaining in the bazaar, demonstrating that the practice involves more than price determination. Geertz drew attention to the importance of multidimensionality: that beyond price, quantity and quality are aspects of the transaction to be negotiated:

> "Quantity and/or quality may be manipulated while money price is held constant, credit arrangements can be adjusted [...] In a system where little is packaged or regulated, and everything is approximative, the possibilities for bargaining along non-monetary dimensions are enormous." (Geertz 1978, 31)

Through his reframing, Geertz challenged the idea of "bazaar behaviors" as backwards and showed them to be a highly rational means of navigating imperfect information. We now turn to examine these behaviors in the context of the Indian hotel market.

SECTION 2. THE INDIAN HOTEL MARKET

2.1 India, Development and The Domestic Tourism Market

India can rightfully lay claim to being the world's most sophisticated digital economy. Outlining some of the technological developments of the last two decades, which have been driven by public sector initiatives and private sector activity, provides important context for the economic behaviors which the remaining sections of this paper explore.

A critical accelerant has been the flourishing of the telecoms industry. For example, the arrival of the telecoms company Jio, was a market-defining moment, initially offering free, and then low-cost, internet access via dongles. It is now the largest mobile network operator in India and the third largest globally with over 426.2 million subscribers (Reliance Industries 2021).

India is ranked seventh in the world for countries with the cheapest mobile data rates, at $0.16 per 1GB (Cable 2023), and with 750 million smartphone users (GSMA Intelligence 2021), India is now a mobile-first economy. GSMA Intelligence calculates that 81% of the population have a smart- or feature phone (ibid.). WhatsApp is, de facto, the communications layer for India, with 535 million active users and heavy use by businesses (Ruby 2023).

However, appreciating what's known as "India Stack" is crucial to understanding how cheap internet access and rapid smartphone adoption alone have not powered India's technological revolution. India Stack is a family of APIs, open standards, and infrastructure components that allow a user in India to demand services digitally. It has three layers: digital identification, which gives every resident a unique ID and enables them to prove their identity (eg. Aiyar 2017); data empowerment or trust through consent, which facilitates secure sharing of data; and interoperable payments through the Unified Payments Interface (UPI), which enables fast, cheap and frictionless transactions (Carrière-Swallow et al. 2021). Combined, the layers of India Stack have lit a fire under the economy of the world's most populous country.

These technology developments[6] have occurred in the context of an economy charting a course to liberalization since 1991, with the country achieving 5.5% average GDP growth over the past decade (Morgan Stanley 2022). In the context of

the travel market, rising prosperity has led to increasing car ownership, and the emergence of low-cost airlines has allowed India's population to act on state and central government campaigns, such as *Dekho Apna Desh* or "See your Country", exhorting citizens to explore their diverse country. In 2019, there were over 2 billion domestic tourist visits in India (Statista 2023). New forms of travel and holidaying run alongside long-standing journeying practices, such as the pilgrimages undertaken by India's many religious communities.

In the context of rule by the nationalist Bharatiya Janata Party (BJP) since 2014, technology infrastructure development has a strong indigenous flavor, mirroring some of the rallying calls of the independence movement, such as *swaraj* (self-rule) and *swadeshi* (self-sufficiency). For example, the Open Network for Digital Commerce (ONDC) initiative—specifications designed to foster open interchange and connections between shoppers, technology platforms, and retailers—seeks to counteract the dominance of global ecommerce platforms in the country (Sethuraman and Ajith 2023).

The absence of domination by global brands in the Indian travel market reflects the strong indigenous flavor of these broader technological developments. India is one of the few places in the world where local online travel aggregators (OTAs) are used more widely than their global equivalents; MakeMyTrip, ClearTrip, Goibibo and OYO are more than equal rivals to Booking.com, Expedia and Hotels.com. However, global platforms such as Instagram, YouTube and Google Search play an instrumental role in all phases of the travel journey; from early-stage inspiration and exploration, to more detailed research and price comparison. These platforms, and the information they provide, are lubricated by the heavy use of WhatsApp to compare notes with friends and family, plan trips and to interact with hotels. And it is these behaviors—both on- and off-platform—which we now explore in more detail.

2.2 Opting for Friction in Hotel Booking

If the natural evolution from moral economies with bazaar-like characteristics to markets with moral authority were to hold true then the strongly digital flavor of commerce in India, and in the travel market more specifically, could be expected to give rise to more thoroughly online and frictionless transactions.

Ethnographic research conducted in June and July 2022 with a team from Google Search that sought to understand the operation of the Indian lodgings market for domestic travelers, revealed a more complex reality. The browsing and booking behaviors of domestic Indian travelers we met strongly echo the bazaar behaviors described by Geertz, and Alexander and Alexander.

Extensive Search

Like Sachin who we met in our introduction, many travelers make use of a wide array of digital tools to gather information about hotel options. OTAs and Google Search are well-used, but not for final booking and payment. Rather, they are used to determine what sort of rooms are available in what sort of hotels for what sort of price. There is no "one stop shop" for hotel search—travelers tend to cast a wide net to compare options and prices, despite the effort this entails. One traveler reflected: "comparing so many platforms and applications takes up a lot of time and energy".

Price benchmarking is an important early step in the hotel search process—this information can be wielded later in negotiations to secure a better deal. For example, 19-year-old Anil told us how he uses prices from OTAs to negotiate with hotels in person: "my budget is INR 1500–2000 but I'm looking to get an INR 4000 hotel. With the price from MakeMyTrip I can ask for a better rate at the first hotel. Then I go and ask at a few other hotels and find the best deal".

Intensive Search

The next stage of the hotel journey is where the similarity between Indian travelers' behaviors and those associated with bazaars become strikingly apparent. Having narrowed down their selection to a small number of options, again and again we saw travelers using a range of means to verify online information and glean additional information.

Not trusting the information on a single platform, travelers often check the same hotel across multiple platforms. Many seek verification from hotels directly, typically phoning to ask questions and request photos or videos. Hoteliers expect and support these behaviors: travelers "want to know what the hotel looks like and make sure that it looks like what is claimed online", explained one hotelier in Shimla. "They also want to verify amenities. We often send through WhatsApp." Here we see the principle of "thorough examination and consultation" (Uchendu 1967, 41) in action.

Perhaps most surprising to any readers accustomed to booking accommodation online in advance, we found it was common to wait to inspect a hotel in person before committing. 32-year-old Sita travels with her husband and young daughter. She tends to book two or three hotels in advance via OTAs, then visits each option in person before making a final decision, noting that "we like to check out the rooms and see what other amenities they have for kids, make sure our daughter will be comfortable there". The desire of Indian travelers to "wait and see" drives a preference for apps with flexible reservation policies. One traveler remarked that the disadvantage of Airbnb is that you have to pay upfront, and you do not even know the exact location of the property until you book.

Meta Search

The act of engaging in intensive search offline—using voice and video calls or WhatsApp messages—begets the information being sought. However, it also enables people to make a judgment about more ineffable factors which matter to them. One participant recounted asking a hotel to send up-to-date photos of rooms over WhatsApp. Beyond assessing the photos shared, she judged the response time: "only if they reply in the next 5–10 mins I go forward with them". The speed of response was taken as an important signal of the level of service one might expect to receive as a guest at the hotel. Travelers, therefore, willingly seek out interactions with hotel staff (and in some cases, other hotel guests) to garner this kind of second order information.

In India, meta search is an important component of hotel room booking decisions and a key causal factor in the prevalence of on- and offline booking behaviors. If extensive search helps with assessing the hotel landscape, and intensive search with the discovery of more fine-grained qualities and characteristics, meta search enables the elicitation of information that can make the difference between a satisfactory and excellent stay.

Multidimensional Haggling

It is pertinent to note that we did indeed see examples of haggling over price. Desire to engage in haggling, rather than accept fixed prices displayed online, drove some travelers like Sakshi to pick up the phone or visit the front desk: "in order to get the best deals I currently call the hotels and negotiate directly with them".

However, more frequently we observed haggling for extras and flexibilities. When traveling as a group of six, Deepan and his cousins try to fit in two rooms to save money—he calls up the hotel to request this. "Otherwise, we need to shell out on an extra room. They don't say online, it's always a secret, you need to call them to ask. If the manager is kind, he says yes." Ability to negotiate extras was a common reason cited for waiting to pay in person. As another participant, Jiya, noted, "the check in-out time is fixed if you book online but if you go there, you can convince them to move around the timing". Hoteliers are willing counterparts in these exchanges. "People like to get a package with breakfast included. Sometimes we give them breakfast plus one more meal", a hotel manager in Rishikesh explained.

Figure 2. Bazaar behaviors

We see, then, a clear pattern of eschewing the path of least resistance (searching, selecting and booking a hotel online in advance of a trip) for one involving considerable time, effort and human interaction.

These stories are supported by available market data. In 2020, according to a leading travel industry research group, only 5% of bookings were made online directly with the hotel and 30% through OTAs, with 65% made offline, either in-person or over the phone (Phocuswright 2020). The pre-Covid numbers for 2018 and 2019 were 72% and 69% respectively (Phocuswright 2020).

2.3 The Online Puzzle

At first glance the online world might be seen as the purest expression of the rational market where plentiful information instructs transactions between disinterested, remote parties, and leads to perfect price optimization.

The Indian hotel market, then, represents something of a puzzle. It operates in what is technologically an extremely sophisticated market. Those with the means to travel and book hotels have smartphones and the apps required to discover, research and book hotels but, in general, they disavow the invitation to complete the transaction in the frictionless ways available to them. Despite the apparent abundance of information online via OTAs, hotel websites, social media accounts and travel bloggers, industry data and our own ethnographic explorations make it clear that on- and offline behaviors comfortably coexist.

It is not a market *qua* market—one in which the logics of "pure" economic exchange dominate—but one in which practices more commonly associated with the bazaar are in evidence. It is a market that combines elements of the online world and practices more commonly associated with the offline world: dense interaction, communication, assurance-seeking and deal striking.

The question remains: why? And how might an understanding of bazaar behaviors inform our understanding of the online world in a broader set of market contexts? To answer these questions, it is necessary to explore in more detail the qualities that hotel (and rooms) exhibit as commodities, and the cultural and economic logics in play.

SECTION 3. MAKING SENSE OF BAZAAR BEHAVIORS

3.1 The Qualities of Hotel Rooms as Commodities

One place to start making sense of the persistence of bazaar behaviors in an ostensibly online market is to explore the nature of hotel rooms as commodities. As we have shown, behaviors such as protracted investigation and bargaining are found cross-culturally for goods with a high-ticket price, or which are infrequently purchased. So, a partial explanation to the enduring appeal of specific economic exchange behaviors is likely to be found in the nature of the commodities in question. Hotel rooms have four characteristics relevant to this analysis.

They are perishable: a room not sold for a night will never yield a profit for the hotel. As a result, sellers are keen to sell, and buyers are aware that hotels have little incentive to have unoccupied rooms. Both parties therefore know that deals can, and should, be struck.

They are heterogenous: hotels are highly variable in quality, location, price, amenities and style. Both across and within hotels, two rooms are rarely, if ever, identical. The nature of the Indian hotel market further amplifies this lack of standardization. There is a very high proportion of independent and small (or lone) operator properties compared to soft-branded[7] or chain hotels. Independent and unbranded hotels constitute 72% of the market, branded and traditional hotel chains (domestic and international) just 5%, and conversion branded hotels (for example those listed on OYO) and "new-age chains" (Ginger, Lemontree) run to 8% (Hotelivate 2019). This structure amplifies what is, by its very nature, a highly heterogeneous market. One reliable proxy—brand-led standardization—is largely absent, particularly away from the top end of the market.[8] Gaining a nuanced picture of the specific hotel and room under consideration through rigorous information gathering is therefore the main way to ensure expectations are met.

They are hard to evaluate: without in-the-flesh inspection rooms are hard to assess with any degree of certainty. Pictures, videos and reviews as sources of information go only so far in helping Indian travelers discriminate and make choices. "It's misleading", bemoaned one participant. "Sometimes the bedsheets are not proper, there are bugs, it's way too small…you can only understand a certain extent from a picture. When you get there, you really understand how it looks, how it smells, how clean it is, there is an AC but does it actually work?" Noise, smell, cleanliness and sense of safety are crucial criteria which travelers struggle to discern from online information alone; on-the-spot evaluation is preferable. Moreover, as an experiential commodity reliant on service and hospitality, "performance is always different and cannot be tried or tested before purchase" (Fernández-Barcala 2010, 2)—for this reason would-be guests look for signals that might help predict their experience, such as staff demeanor over the phone.

They are high stakes: trips are, for most, a break from daily life. They are keenly anticipated and deeply valued. This is particularly true for the millions of Indian citizens who are entering the travel market for the first time in recent years with aspirations fueled, in no small part, by inspirational content on social media, together with the government's domestic tourism campaigns mentioned earlier. In addition, large family trips, which are very common in India, place a huge amount of pressure on the organizer to ensure that the chosen accommodation meets the often-exacting standards of older relatives. As 25-year-old Asha expressed, "I need to carefully plan everything when traveling with my parents because if something goes wrong, they would blame everything on me". Therefore, finding the right hotel, and getting the best deal, justify a considerable investment of time and effort.

Igor Koptytoff (1986) describes the way that objects oscillate between commodity and "singularity", between being homogenous, and being singular objects with a unique value. Extensive and intensive search, negotiation and bargaining signal the desire of hotel bookers to "singularize" their purchase: to transform the homogenous or mass into something special or unique. In the context of a market with an emerging middle class with disposable income this transformation from commodity to singularity brings to mind Alfred Gell's comment on "newcomers to the world of goods":

> "[W]e should also recognize the presence of a certain cultural vitality in these bold forays into new and untried fields of consumption: the ability to transcend the merely utilitarian aspect of consumption goods so that they become something more like works of art, charged with personal expression." (Gell 1986, 114)

In-depth discussion about a hotel room with a hotel manager prior to booking clearly does not make the room into a work of art, but it does charge it with significance. In that light, there is a certain logic in opting for more, not less friction.

Significantly, the characteristics we have outlined for the hotel market are similar to many of the commodities sold in a typical bazaar: unbranded, highly heterogeneous, of unknown provenance and consequential value, and therefore deserving of deeper investigation. Hotel rooms and goods in the bazaar share an equivalence: what exactly they are needs to be revealed before people can happily finalize their transaction.

3.2 The Cultural Logics of Hotel Search in India

Neither commodities, nor the modes of economic exchange that they are enmeshed in, exist in a vacuum. It is important to understand the cultural context and logics that prevail. Our research highlights some broad cultural dynamics at play that shape people's behavior when making hotel reservations: bargaining as a social norm, value maximization mindset, low trust in exchange partners and cultural plurality.

Bargaining as a social norm: the acceptability, or desirability, of engaging in bargaining varies by culture. For as Geertz observed, "[b]argaining does not operate in purely pragmatic, utilitarian terms, but is hedged in by deeply felt rules of etiquette, tradition, and moral expectation" (1979, 105). This runs in both directions. Gretchen Herrmann's work on garage sales in the USA shows how some sales participants disguise themselves before engaging in bargaining activities, such is their discomfort with the practice. Meanwhile others, such as Eastern European, Indian and Chinese participants, be they buyers or sellers, are more comfortable and even proud of publicly displaying their negotiating skills (2003, 239). So, while Herrmann noted "Americans' general ambivalences towards bargaining and the premium they place on friendly day-to-day economic interactions" (2003, 241), in the context of India bargaining is widely practiced, highly valorized, and something that people are keen to demonstrate their skills in. Indeed, there is "social prestige and honor" (Uchendu 1967, 45) attached to both the performance, and results, of bargaining.

Value maximization mindset: a mindset which Indians refer to as *paisa vasool* (literally money recovered, more idiomatically "getting the best bang for your buck") leads to value hunting behaviors. But *paisa vasool* extends beyond merely saving money to maximizing the value of interactions, transactions and experiences. Extracting extras from a hotel—an additional bed in a room for a child, late check out, or full board for the price of half board—are all evident when people engage in bazaar-like interactions with hotel management. Extracting this value is often easier through direct communication, providing a compelling reason not to book online.

Low trust in exchange partners: generalized suspicion about the intentions of individuals and businesses outside of one's circle of known associates leads to assurance-seeking behaviors. This default lack of trust in the information given about products and services was captured by one Varanasi resident who told us, "We make our own milk or buy from friends. You can't trust the milkman, he'll water it down." In the context of travel, people are skeptical about the claims made by hotels, especially online. For example, many participants expressed the suspicion that photos on hotel websites were likely outdated and misleading.

High cultural plurality: the extensive religious, regional and cultural diversity of India leads to preference-specifying behaviors. People from different communities have specific requirements that need to be accommodated. Participant Siya is from the state of Gujarat and only wants to stay in hotels that cater to her regional dietary preferences: "someone we know told us that the hotel serves Gujarati food and all our food requests would get fulfilled. Hence we called them to confirm and then booked." In a context where specific dietary needs are more than mere preferences, and often involve prescriptions and proscriptions, verifying that they can be catered for is crucial. Double checking on the phone is preferable to leaving things to chance.

Our analysis thus far has explored the commodity qualities and cultural logics shaping behaviors in the India hotel market. We have argued that bazaar behaviors

involve the combination of extensive, intensive and meta search to assess the qualities, and ultimately agree on the price of hotel rooms, which have a series of qualities that make them more or less unknowable, whatever the information available about them online. These different forms of search—engaged in both on- and offline—occur in a cultural context in which the goal of value maximization is all important and where people do not always take the information presented to them at face value. Bazaar behaviors also help would-be hotel guests ensure that their religious, caste or community preferences, prescriptions or proscriptions will be catered for.

Given that determining the price of a commodity is the logical endpoint of the different forms of informational search that we have outlined, and haggling is seen as the signature practice of the bazaar, the economic dimension of hotel search and booking demands further explanation—not least because in online marketplace where prices are clearly articulated it might be assumed that bargaining is unwarranted.

3.3 The Price Information Context

Let us return to Geertz's description of the information landscape: "in the bazaar information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued" (1978, 29). One might argue that online information pertaining to hotels and their rates is in contrast: rich, plentiful, instantaneously accessible, efficiently communicated, and freely available to all. However, there are three features of the present-day online hotel market (as experienced in India, but also internationally) which lead it to in fact more closely match Geertz's description.

Price information overload: for every destination, there are multiple hotels; for every hotel there are multiple room options; for every hotel and room option, there are different prices available via different booking sites, and each room-hotel-booking site combination may be advertised across multiple aggregator sites, each of which may offer additional deals or rewards. The sheer volume of permutations leads to an inflection point when signal becomes noise—when information plenitude is experienced as information anxiety.

Prices are in flux: first popularized for flight booking, hotels are increasingly adopting dynamic pricing, where instead of fixed rates for certain dates, room prices fluctuate in response to demand. Such algorithmically determined prices are unstable, variable, and not necessarily the same for everyone. Moreover, scarcity tactics (eg., "only one room left at this price!") may be used to inflate demand, sometimes artificially. Travelers cannot trust that the price they see on a given day is reasonable or universal.

Prices are deliberately opaque: hotel booking platforms are increasingly following the practice of drip pricing whereby common components of a service are unbundled from the upfront offer and reintroduced at a later stage in the booking process as "extras", for an additional cost. Other platforms hide compulsory fees and

taxes until the final stage of booking, artificially lowering their sticker price to undercut competitors during the initial search phase. Writing for The New York Times in June 2023, Brian X. Chen remarks:

> "[T]he days of using search engines like Google, Expedia and others to rapidly search for travel deals are long gone. You might be able to get an idea of the approximate cost of a ticket or hotel room, but you have to put in a lot more time and effort to tally up the real cost."

These practices force the traveler to run through the different permutations of what different websites are offering, to compare the often incommensurate, before making a decision. Here, we hear echoes of Geertz's concept of multidimensionality, where "quantity and/or quality may be manipulated [...] In a system where little is packaged or regulated, and everything is approximative, the possibilities for bargaining along non-monetary dimensions are enormous" (1978, 31).

Combined, these features create a chaotic user experience. Search results often beget more questions than they answer: why is there such variability? Is what I am getting for price X different than if I pay price Y? What risks are there in opting for a cheaper price? The market is allegedly acting as it meant to but creates instability and uncertainty. The net result is a distinct sense of distrust in price information displayed online, and a series of questions which extend far beyond prices and which cannot be satisfactorily answered without further, often offline, research.

In a piece for The Atlantic published in May 2023, "Hotel Booking is a Post-Truth Nightmare", Jacob Stern details the unscrupulous practices used by hotel booking sites and aggregators and the effect on consumers:

> "Buying stuff online is often stressful, but booking a hotel these days is a uniquely excruciating experience. [...] The best analogy for online hotel booking, I think, is a hall of mirrors: You can't tell what's real, and you can't escape."

A cottage industry of hotel price hacking advice has emerged in response and acts as further evidence of the informational maelstrom travelers find themselves in when looking for a place to stay.

Here we see a further challenge to the implied teleology of bazaar to market. The technological advancement of hotel search and booking has created a system which is decidedly and increasingly bazaar-like. Bazaar behaviors in this context make sense. The Indian hotel booker is smart in not assuming that the information they are presented with is complete, trustworthy or objective, and in undertaking additional steps to ensure an acceptable lodging choice.

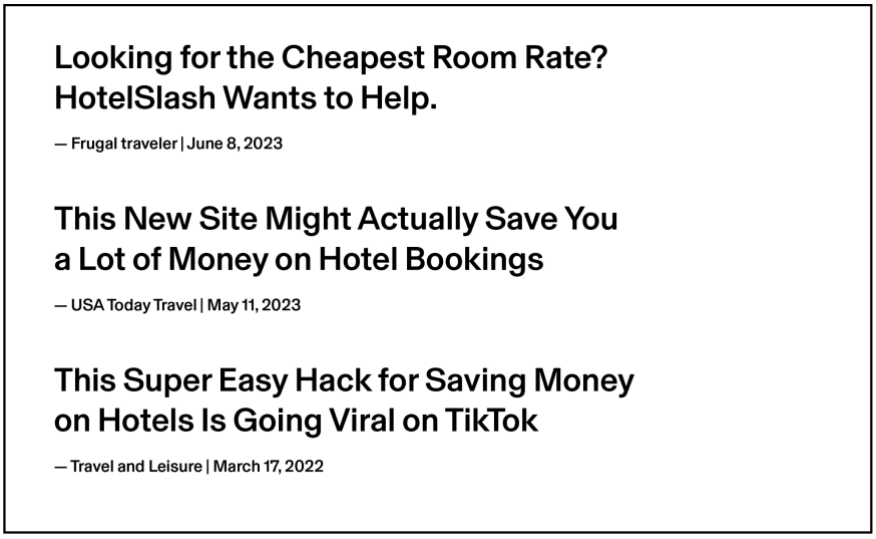

Figure 3. Three examples of articles offering hotel price hacking advice

SECTION 4. FROM THE PARTICULAR TO THE GENERAL: THE BAZAAR AND ONLINE COMMERCE

4.1 Generalizing Bazaar Behaviors

In this final section, we consider how an account focused on the booking of hotel rooms in India might be legitimately generalized to other market verticals and contexts. Our aim is to explore the extent to which bazaar behaviors provide a useful lens for understanding online marketplaces not just in "emerging" or "frontier" markets, but in Western or other developed economies. As we noted at the outset, orthodox economic theory has implied that the sort of behaviors we have given an account of should wither away in favor of more frictionless transactions. And yet, as we have demonstrated, they do not because they make sense for certain commodities transacted in certain cultural and informational contexts. At this juncture it is worth restating that bazaar behaviors have never been a phenomenon only seen in non-Western contexts.

Our aim then is less to provide a predictive model but rather a framework that suggests under what circumstances people might favor friction rather than seek to expunge it from their online transactions. Our hope is that by offering this corrective to the teleology of "bazaar to market" we can guide the development of online marketplaces that serve both buyer and seller better and allow intermediaries and aggregators the means to design their platforms in such a way that friction is recognized as a positive virtue, not something to be designed out.

To do that, we return to the three key factors that our analysis has shown to be relevant to bazaar behaviors: the qualities of commodities, cultural logics, and price information context. We provide a set of questions within this framework that might

usefully guide those creating online marketplaces, or acting as market intermediaries, where bazaar behaviors are likely to be a reality.

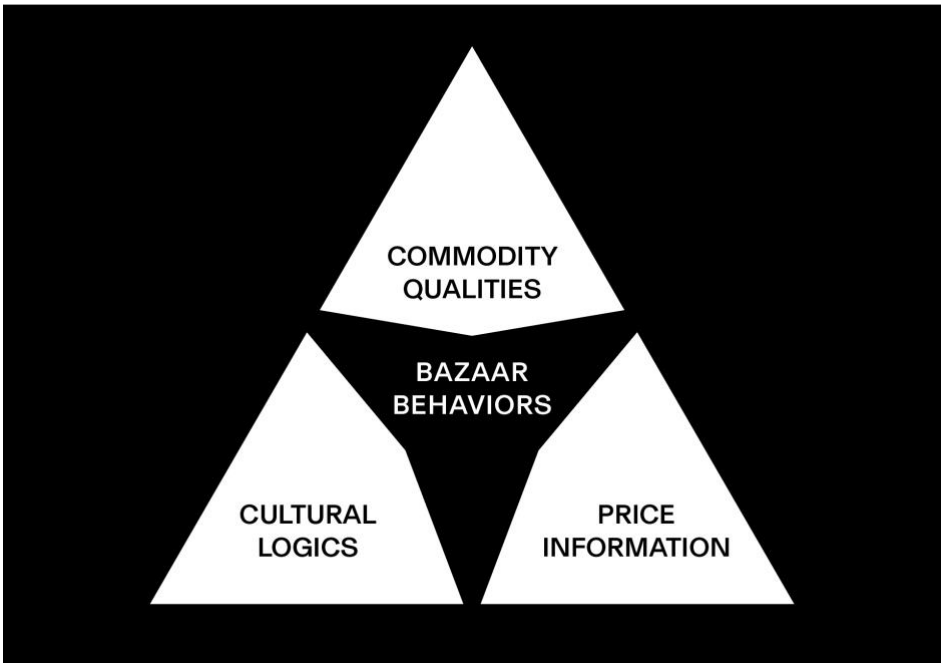

Figure 4. A framework for making sense of bazaar behaviors

Commodity Qualities

As our account has shown, the qualities of commodities have an important bearing on how exchange plays out. Commodities with certain qualities lend them a propensity to be subject to bazaar behaviors.

Perishability: we showed that hotel rooms are perishable. Many other commodities are perishable, such as fresh food, theater tickets or airline seats—if they remain unsold, they go bad or remain unused. Perishability creates an urgency on the part of the seller, and the opportunity for the buyer to get themselves a bargain. A temporal dimension is at play that impacts the perceived or actual value of the commodity. Perishability of a different sort is also a dimension for goods of a non-perishable nature. A seller may wish to shift everything towards the end of a period (say a fashion season or sale day) rather than find themselves with unsold stock and all its associated costs.

- How perishable are the goods being sold?
- Are they perishable by their nature or is their perishability created through temporal or other interventions?

Heterogeneity: the extent to which a commodity is standardized is widely acknowledged to have a bearing on exchange practices: "the greater the variation in the quality and quantity of a unit of commodity, the more haggling there seems to be" (Uchendu 1967, 37). It follows that online marketplaces for unstandardized products need to take seriously the importance which buyers and sellers will attach to some back and forth on the nature, and the value, of the goods being sold.

- To what extent are the commodities on sale standardized?
- What differences between apparently similar commodities might need to be highlighted?

Evaluability: highly related to the question of standardization is the extent to which a product can be evaluated. Those which are harder to evaluate will require more intensive information and ultimately price search.

- What information might be expected to be sought about a commodity?
- What explicit or more implicit information might be valuable to a buyer, and how might sellers seek to represent or provide commentary on it?

Consequentiality: routine purchases of groceries or other standardized goods of low value are generally considered not worth the time cost of extensive and intensive search. On the other hand, high value items, and those less frequently purchased can be deemed worth it. The value of items is not fixed: in times of inflation or scarcity, or for certain consumers in certain contexts, even humdrum commodities are worth the time cost involved in driving a better deal.

- What is the cost of the item in the context of wider purchasing power or average income levels?
- What is the frequency of purchase?
- What other factors are in play that make a commodity high stakes to an individual or at a wider cultural level?

Cultural Logics

As economic anthropology has shown, cultural and moral logics are at play in almost all exchange activity. Our account has focused on those governing exchange, on- and offline, in India, and we have argued that it is not possible to understand how "business gets done" without referencing them. The existence of similar logics in other cultural settings cannot be assumed, but our analysis suggests paying attention to certain dimensions that influence the likelihood of bazaar behaviors and may make them worth designing for rather than designing out.

- **Social norms around bargaining**
  - Is the "art of the deal" important on both sides of an exchange relationship?
  - Is bargaining seen as an integral and valued part of exchange in a particular setting? Is it the expectation rather than the exception?
  - Are exchange skills prized as a source of prestige?
- **Mental models of value**
  - What are the cultural concepts of value in play?
  - To what extent is value claiming and seeking established as a cultural expectation of both buyer and seller?
- **Trust in transactions**
  - What assumptions do buyers and sellers make about each other's intentions?
  - To what extent is information about commodities taken at face value?
  - How does background cultural noise about scams, malfeasance and fraud influence how people conceive of exchange?
- **Cultural plurality**
  - To what extent is the market culturally plural?
  - How does this affect buyers' diversity of requirements for the commodity in question?

Price Information

We have challenged the idea that fixed price online marketplaces eliminate the information asymmetries commonly associated with the bazaar. Our analysis shows that it is not in spite of but in part because of information plenitude that bazaar behaviors persist in online markets. Technologically advanced features like dynamic pricing generate further confusion and uncertainty. In this context, additional offline investigation is often prudent.

- **Volume of price information**
  - How vast is the set of price options online?
  - To what extent are buyers able to confirm they've found the best price for a given product or service?
- **Stability of price information**
  - Is pricing fixed or dynamic?
  - How do buyers understand price fluctuations?
- **Transparency of price information:**
  - Are prices clear and transparent?

- To what extent is it possible to compare and contrast similar options online without thorough investigation?

4.2 Concluding Thoughts

At the outset we argued that the distinction between the market and bazaar is at best false, and at worst unhelpful since it effaces the ways in which the ideology of the market fails to capture the multitude of ways in which economic exchange is shot through with social relations and moral values.

We end with the proposal that it might have some analytical merits after all. In the specific case of the hotel market in India, it has provided a way to see how the market really operates and why it works the way it does. And while one of our aims has been to introduce some friction into the idea that bazaars are "less than proper" markets hanging around in what Chakrabarty termed the "waiting room of history" (2000, 7), the other has been to show that bazaar behaviors, far from being exotic performances—mere affectations—are in fact highly rational ways for market participants to operate. Indeed, it is worth observing that many of the breakout successes in the age of platform capitalism (eg. eBay and Airbnb) are sites which explicitly embrace bazaar behaviors.

In the tradition of anthropological analysis, we have explored a particular socio-cultural and economic phenomenon to reframe and make sense of it. However, we believe that our analysis has more general applicability to scholars and practitioners seeking to understand or build arenas of economic activity which are optimized for all market participants. Our final contention is that bazaar behaviors should not be designed out, nor merely tolerated, but embraced as indications of economic activity at its most engaged, vital and meaningful.

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1. In this paper we use the term haggling and bargaining interchangeably.

2. For further elaboration of the historical and historiographical scholarship exploring the market nature of bazaars in colonial India see Ray (1995) and Bayley (1983).

3. This distinction between two types of trade was an important dimension of the "civilizing" mission of colonialism. Accounts counterposing two modes of economic exchange became central to a colonial ideology that equated different types of trade with different types of society. Gemeinschaft—a society where economic activities are based on formalized and impersonal social relations, was contrasted to gesellschaft—a society where community and social relations pattern exchanges (eg. Sarkar 2022).

4. It is worth noting that the emergence of fixed price exchange enabled social distinctions to be made within the West. Alexander Stewart is credited with introducing fixed and visible prices in his New York dry goods store in 1823, and this innovation diffused to eventually dominate the retail sector. Packaged goods with trade names (proto-brands) became positioned as more sanitary and of better quality than unpackaged goods. Class distinctions became etched into the opposition between such branded goods and the stores that sold them, and their unpackaged counterparts sold without a fixed price in less "savory" locations (eg. Herrmann 2003, 238). The distinction between two types of economic exchange within the USA added further freight to the idea that bargaining was less advanced than fixed price exchange.

5. The idea of "alternative modernities" is relevant here, challenging the assumption of linear development and arguing that modernity always "unfolds within specific cultures or civilizations and that different starting points of the transition to modernity lead to different outcomes" (Gaonkar 1999, 15).

6. For a detailed history see J.P. Singh's "Leapfrogging development?: the political economy of telecommunications restructuring" (1999).

7. Soft-branded is a term used in hospitality that describes a hotel franchise or chain company. This organization, in comparison to other hotel franchises or hotel chains, provides the benefits of a larger chain without enforcing strict rules, regulations or strong brand identity on the franchisor or chain member (Xotels n.d.).

8. A fuller portrait of the Indian hotel market can be found in Chitra Narayanan's "From Oberoi to Oyo: Behind the scenes with the movers and shakers of India's hotel industry" (2022).

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Towards a Framework for Constructive Friction Processes

What Childbirth Practices in the Global South Teach Us about Destructive and Constructive Friction

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This paper proposes a simple framework to understand constructive friction processes. In the framework, constructive friction is understood as a symmetrical integration between different bodies of knowledge and practice, and has three manifestations: integration occurring within actors, between actors, and at an institutional level. To explain this framework, we apply it to a recent study on childbirth practices in Latin America, specifically the changing relationship between midwifery and Western medicine. Latin American midwives have resisted destructive friction processes and are starting to participate in constructive friction processes in which their work is horizontally integrated with—and not into—Western medical practice. In our paper we also argue ethnographers have an advantage to apply the framework to understand and even engage in friction processes, because of our critical and methodological disposition.

Keywords: Global South, Western medicine, childbirth practices, displacement, assimilation, integration

INTRODUCTION

A good way to start a discussion about friction is to look towards the Global South[1]. The history of these regions has arguably been one of constant friction processes between two or more agents. These processes have been destructive—when one of the agents is displaced, annihilated, or assimilated by other agents—or constructive—if different, sometimes opposing agents achieve non-hierarchical integration.

This paper focuses on constructive friction seen in the Global South, which we understand as a symmetrical integration between different bodies of knowledge and practice. Its main contribution is a simple framework to identify and thoroughly understand constructive friction processes as something that may occur (1) within actors, (2) between actors, and (3) at an institutional level. We also argue ethnographers have an advantage to apply this framework to understand and even engage in friction processes, because of our critical and methodological disposition: while our mindset is to question the universalizing tendencies of Western modernity

(Escobar 2018), our methodologies enable us to study cultural flows and processes rather than fixed and inalterable cultures (Desmond 2014).

To demonstrate the validity of our framework, we apply it to a recent study on childbirth practices in Latin America, specifically the changing relationship between midwifery and Western medicine. We will show how Latin America midwives have resisted destructive friction processes and are starting to participate in constructive friction processes in which their work is horizontally integrated with—and not into—Western medical practice. What at first glance sounds like a niche subject should be considered a success story of revisiting historic and current phenomena from the perspective of friction. Our hope with such a story is to encourage fellow practitioners to apply our framework elsewhere and to consider it as a tool to advocate for constructive friction processes.

Also worth mentioning is the fact that, with this paper, we hope to contribute to the study of women's historic and present role in medicine, a role that can certainly benefit from a discussion about friction. We're glad to be doing this as researchers working in the Global South, a voice that feminists interested in healthcare and medicine can benefit from. Furthermore, with the hopes of exciting the reader about midwifery, it should be contemplated that practices revolving around childbirth are often considered a reflection of a society (James and Reed 2020) and that hospital childbirths, which are the norm in Western societies, are actually a very recent historical development that is best described as "an active takeover by male professionals." (Ehrenreich and English 2010, 28).

Our paper is divided into three main sections: first we will describe what destructive friction processes look like in the case of midwifery and Western medicine. This will provide a historical context to more accurately understand the second section, in which we introduce our constructive friction framework and its three manifestations (constructive friction within actors, between actors, and at an institutional level). Finally, in the third section, we argue why ethnographers have an advantage in terms of applying this framework to understand and even engage in friction processes.

DESTRUCTIVE FRICTION

Rather than attempting to provide a thorough history of midwifery, in this section we focus on those specific moments in history where destructive friction between midwifery and Western medicine (not just in Latin America, but globally) is most evident: the displacement of midwives as a result of doctor's monopoly on childbirth—destructive friction by displacement—and the medicalization of midwifery as means to incorporate midwives into Western medical practice — destructive friction by assimilation.

Destructive Friction by Displacement

Childbirth experienced significant changes during the nineteenth century, as a result of more encompassing societal transformations that were also taking place. It was during this period of time that "expert knowledges" disrupted previously "taken-for-granted practices" in modern societies (Escobar 2018) and that Western knowledge established itself as more objective and universal and thus more legitimate (Nieto 2019). Likewise, the firm belief in applying technique, calculation, and technology to overcome bodily limitations—a legacy of the Industrial Revolution mindset—became widespread (Hernández 2012). These transformations affected childbirth in a way that is best described as destructive friction. Childbirth was reduced to a physiological process, one devoid of emotional and spiritual dimensions and beyond the scope of the midwife. Doctors, medical protocols, drugs, and hospitals became the norm and permeated not just childbirth, but pregnancy and childbearing as well (Ehrenreich and English 2010). The disciplines of gynecology and obstetrics consolidated during this time replicated this belief, and thus contributed to the Western hegemony on childbirth.

There are at least two reasons why this displacement of midwives is destructive. First, in the Western medical paradigm, childbirth became something that is done to women, rather than something women do. Women undergoing labor were—and still are—immobilized and not fully informed about drugs and procedures used. This was reinforced by the fact that childbirth was taken out of the homes and into hospitals, something worthy of attention if one applies the body-territory extension present in feminist theory (Borboleta and Nicté 2020). Second, the way doctors perceived and approached puerperal fever, an infection that occurred in women shortly after childbirth, actually increased maternal deaths. It was thought that a woman undergoing labor could be "auto-infected" by her own bodily fluids, so the logical solution was to disinfect her genitals—instead of having the doctors use medical gloves (Hernández 2012).

In this discussion about destructive friction, we prefer to talk about displacement rather than annihilation. After all, midwives continued their practice throughout the nineteenth century and beyond, without institutional support and in the periphery, that is, places relatively untouched by the medical paradigm (Hernández 2012). This coincides with Ehrenreich and English's observation on the historic role that women have played in medicine as autonomous (non-institutional) healers or healers of the poor and vulnerable (Ehrenreich and English 2010). This, however, doesn't mean destructive friction should always be understood as displacement; fellow practitioners interested in studying phenomena from the lens of friction processes should consider if these processes are destructive due to displacement or annihilation, or both.

Destructive Friction by Assimilation

The professionalization or medicalization of midwifery during the twentieth century introduces us to the notion of destructive friction by assimilation (rather than displacement). During this period, it became possible for women to enroll in university programs and obtain the title of midwife or "licensed obstetrician" (Marina, interview). This was encouraged via healthcare reforms, at least in Latin American countries, where we've conducted most of our ethnographic fieldwork. And it is precisely because of this fieldwork that we've understood that what might seem like a genuine effort to integrate the midwives' vision to Western medicine is actually an assimilation, or the absorption of an agent perceived as passive by an agent perceived as active.

There is one particular actor that has contributed the most to our understanding of destructive friction by assimilation, which is Latin American independent midwives[2]. Unlike traditional midwives (usually found in indigenous or afro-descendant communities, and whose practice is an extension of their community's cosmovision), independent midwives do not limit their practice to a specific ethnic group. Some of them even have a background in medicine, but have resisted the medicalization of midwifery and practice it "independently". They describe assimilation as midwives being trained to become (and reduced to) the collaborators or assistants of the still authoritative doctor (Borboleta and Nicté 2020; Marina, interview). On a similar note, feminists have used the following remark to refer to women nurses, but it applies just as much for twentieth century midwives: they were "…incorporated as workers into an industry where the bosses are the men." (Ehrenreich and English 2010, 26).

Fellow practitioners interested in our approach to friction should acknowledge assimilation can be just as destructive as displacement or annihilation, as it implies a *total rejection* of the forms of knowledge and practices that the midwife—or any agent considered passive—brings to the table. Latin American independent midwives we've conducted ethnographic interviews with argue university or state-led programs on midwifery do not contain anything derived from traditional midwifery, despite there being a rich tradition in these countries. A concrete example is a certification program for aspiring midwives in Mexico, which restricts (and not just advises against) the use of medicinal plants and enforces the use of synthetic oxytocin (Proyecto Matriz, interview)—despite the empirical evidence in favor of plant use in the long-standing midwife tradition in the country.

Another example of the destructive properties of assimilation is the fact that traditional, non-Western midwifery is valid only in the absence of medicine, science, and development. The work traditional midwives do in their rural and/or ethnic communities is praised and admired but just until medical and scientific progress reaches these communities (Borboleta and Nicté 2020); from there onwards, they become subject to assimilation. This results in the exoticization of midwifery:

something less developed peoples practice for lack of a better option, before being exposed to modern science and medicine.

Our examples illustrate why independent midwives emphatically distance themselves from midwives that have been assimilated into Western medical practice, or midwives that have become "just another pawn" of the hegemonic medical system (Marina, interview). They argue that, in the context of assimilation, exercising independent midwifery is an act of resistance (Borboleta and Nicté 2020).

THE CONSTRUCTIVE FRICTION FRAMEWORK

Having explained how destructive friction can be understood as displacement or assimilation, we will now address constructive friction—understood as the symmetrical integration between different bodies of knowledge and practice—and how it can happen within actors, between actors, and at an institutional level. These three manifestations of constructive friction make up a framework, which is this paper's central contribution, in the sense that it can be applied to understand friction processes beyond midwifery and medicine.

Manifestation 1: Constructive Friction Within Actors

Integration processes usually imply there should be at least two actors or entities that are to be integrated. However, just as constructive friction occurs between actors (see manifestation 2), it can also occur *within* actors. What makes a single actor a carrier of constructive friction? Fellow practitioners should watch out for the following characteristics:

1. Actors that have willingly pursued or been exposed to more than one body of knowledge practice, background, profession, discipline, belief system, etc.

2. Actors that usually are self-taught: they don't learn about their preferred combination in a formal education setting, which makes them recursive, empirical, and permanent learners.

3. Actors that feel comfortable integrating different bodies of knowledge and practice and see this as necessity rather than experiment.

4. Actors that, by recurring to different bodies of knowledge and practice, have a great capacity to run holistic diagnosis and identify the root causes of specific problems, and are thus more critical.

Applying this to midwifery and Western medicine, it is clear that independent midwives are actors of constructive friction:

1. Many independent midwives we've encountered in the field have a background in Western medicine (physiotherapists, general practitioners,

etc.). This means that, although they have emancipated, they still conservate and hand-pick specific medical practices in their work.
2. Independent midwives are indeed self-taught, due to a lack of formal education on independent midwifery. This has led them to become mentors of aspiring independent midwives.
3. Besides combining elements from traditional midwifery and Western medicine, independent midwives are applying and mixing alternative medicines, gender studies, herbology, technology, epigenetics, and many other bodies of knowledge. They have a large and ever-changing repertoire when it comes to pregnancy, childbirth, and childbearing, and thus see more conventional and one-dimensional actors (doctors, but traditional midwives as well) as more limited.
4. Independent midwives see obstetric violence experienced by women during pregnancy and childbirth as gender-based violence embedded in the medical system (Borboleta and Nicté 2020) and thus understand being a midwife is also being an advocate for women's sexual and reproductive rights.

Manifestation 2: Constructive Friction Between Actors

This second manifestation of constructive friction occurs when two actors with different (and sometimes opposing) bodies of knowledge or belief systems recognize and respect each other's strengths. This can lead to:

1. Both actors not overstepping or outshining each other

2. Symmetrical cooperation between actors

In the case of midwifery and Western medicine, we have examples of both:

1. In Mexico, we observed a tacit agreement between some independent midwives and doctors about roles and responsibilities: these midwives are in charge of healthy women, while a Western doctor would be activated for specific cases, like women with hypertension or similar pathologies, as well as women who require surgery. In specific cases, the independent midwives willingly refer women in their care to these doctors. So rather than rejecting Western medicine as a whole, what is rejected is the idea of Western medicine always determining the standard protocol for assisting childbirth (Borboleta and Nicté 2020; Sara, interview). This agreement is desirable and very different to what happens between these two actors under destructive friction: for example, other Mexican independent midwives argue that some doctors react negatively and judgmentally when they attend to a woman in labor who was previously under the care of a midwife and experiences a pregnancy-related emergency (Proyecto Matriz, interview).

2. An illustrative example of total cooperation is the "intercultural midwifery" practiced by the Mujeres Bachué Foundation in Colombia. The foundation's promoters consider themselves "weavers" of traditional, indigenous midwifery, Western medicine, Western science, and Colombian legislation (Sara, interview). The diversity of the staff and how they're trained, as well as the services offered (consultations, workshops, courses, and ceremonies), are all founded on the principle of interculturality, so assimilation and hierarchies between traditional midwifery and Western medicine are avoided. The foundation also plays an activist role: they lobby with decision-makers to establish a legislation on midwifery and participate in protests revolving around women's sexual and reproductive rights and indigenous rights. There are more examples of intercultural hospitals in Latin America that provide healthcare services in general, not just those related to pregnancy and childbirth. The Makewe Hospital in Chile has been administered by the indigenous group of the Mapuche since the 1990s. The hospital has implemented a detailed model of intercultural healthcare: indigenous medicine is combined with biomedicine, non-Mapuche staff are trained in Mapuche culture, and patients can access both pharmaceutical and herb medicines in the hospital pharmacy (Torri 2011).

Although these forms of cooperation involve institutions (hospitals), we do not consider them constructive friction occurring at the institutional level, which is our third manifestation. This due to the fact that they depend on the will of specific actors and not on state-led initiatives which limits their capacity to be replicated beyond specific sites.

Manifestation 3: Constructive Friction at the Institutional Level

This third manifestation of constructive friction occurs when different bodies of knowledge and practices are integrated in formal institutions, and is usually the result of state-led initiatives or public policy reforms. In the case of midwives, and specifically those in Latin America, although some institutions still promote assimilation and thus destructive (rather than constructive) friction, there are institutional efforts worth pointing out. The World Health Organization's 1985 Fortaleza Declaration, as well as its 1996 "Care in Normal Birth: A Practical Guide", called for the humanization of childbirth and thus include recommendations inspired by the midwife's holistic approach. Colombia's Law 2244 of 2022, which roughly translates as "Law for respected and humanized childbirth", is a more regional example. Or the more recent Law 2310 of 2023 ("Law of empty arms") to address women's mental health when miscarriage occurs. Independent midwives in the country argue laws like these support and vindicate the practice of midwives, both independent and traditional.

A Western medical guide or protocol that perceives pregnancy and childbirth the way midwives do can also be considered constructive friction at an institutional level. Hospitals institutionalizing the method of kangaroo care (skin-to-skin contact) for premature babies, as opposed to incubator care, is an example of this. Among the recognized benefits of this care method is the emotional bonding and stress reduction for the newborn and the parent (Kambarami et al. 1998), which means factors beyond the physical are being considered. Another example is Western medicine's current debate on whether hyperemesis gravidarum, or severe vomiting during pregnancy, could be aggravated by social and psychological factors, as no physical cause has been detected (Munch 2002). Such examples demonstrate how views on pregnancy, childbirth, and neonatal care that are often seen in midwifery can be successfully incorporated into Western medicine protocols.

Independent midwives and scholars argue that these institutional efforts occurring within healthcare must be embedded in broader societal transformations to become truly sustainable. It is hard to imagine how an intercultural health policy can persist if indigenous communities still face structural inequality or if they cannot access intercultural citizenship (Torri 2011). This is why independent midwives have high regard for legislation that strives towards interculturality in general, not just in healthcare. Article 246 of the Constitution of Colombia, for example, states indigenous groups can exercise jurisdictional functions within their territories, as long as they do not conflict with Colombian Law.

When looking for this third manifestation of constructive friction, our recommendation is to rely less on ethnographic fieldwork and more on desk research, considering institutional efforts will almost always be expressed in official documents, such as laws, guides, and protocols.

ETHNOGRAPHY AND THE CONSTRUCTIVE FRICTION FRAMEWORK

Having explained our constructive friction framework, we have a final objective: to convince the reader that ethnographers are well-equipped to apply this framework and thus understand friction processes. This advantage is due to our critical and methodological disposition.

Critical Disposition

Regarding our critical disposition, ethnographers have the ability to not just describe, but acknowledge and even validate different cultures. This ability has arguably been present since early twentieth century anthropology and it is best seen in the way English anthropologist E.E. Evans-Pritchard describes the role of witchcraft in the Azande community in Sudan. Evans-Pritchard is more interested in conveying that, among the Azande, witchcraft is a reasonable explanation for falling down or for pots breaking, than in proving them wrong (Geertz 1983).

This acknowledgment and validation of multiple realities has also been discussed by Colombian anthropologist and post-development thinker Arturo Escobar, who invites ethnographers and designers to open up to the pluriverse and thus challenge the universalizing tendencies of Western modern thought: "The understanding of the world is much broader than the Western understanding of the world." (Escobar 2018, 68). We really can't think of a better mindset one should adopt when studying friction processes, specifically processes in which there are Western and non-Western agents, as is the case of midwifery and Western medical practice.

Likewise, the contribution of postcolonial theory—best summed up as the interpreting power relations in the context of colonialism and its legacy—is relevant for ethnographers wishing to study friction processes in the Global South: understanding power enables us to understand whether integration efforts are constructive (integration) or destructive (assimilation). And a final example of the ethnographer's adequate mindset is Susan Sontag's "Illness as metaphor", a work that has enabled those of us working in healthcare to always contemplate the societal and symbolic dimensions in medical conditions. In the case of midwives, adopting this mindset enabled us to understand the violence implicit in reducing childbirth to a physiological process.

Methodological Disposition

There are several ethnographically based methodologies that can be used to successfully study friction processes. In our study, we applied Demond's relational ethnography, in which boundaries (not bounded groups) and processes (not processed people) become the ethnographic object (Desmond 2010). Thus, our ethnographic object was not Latin American midwives, but *the relationship* between midwives and Western medicine. Having defined our objective using this framework enabled us to design a pointed research agenda (recruitment scripts, guides, debriefs, etc.). Since it challenges bounded groups, relational ethnography also enabled us to challenge imaginaries revolving around "the midwife"; it became easier for us to quickly grasp differences between traditional midwives, independent midwives, and licensed obstetricians. Desmond's recommendation is aligned with Olwig and Hastrup's comment on there being a shift in the anthropological object, from bounded group culture to cultural flows (Olwig and Hastrup 1997). This should encourage ethnographers to design and conduct studies that revolve around processes, such as friction processes.

Also regarding methodology is the vindication of anecdotal and qualitative evidence as the best evidence to understand friction processes. In the case of midwives, it is due to ethnographic fieldwork that we, and researchers before us, could understand there can be a hierarchical, unbalanced, and implicitly violent integration—assimilation—that is just as destructive as displacement. This form of violence been impossible to document and decipher from statistical forms of evidence. The vindication of qualitative testimony is especially important for

ethnographers working in healthcare, considering the establishment of the evidence-based medicine (EBM) paradigm. EBM prioritizes evidence from biostatistics, engineering, and epidemiology and questions the reliability and truthfulness of testimonies and anecdotes (Adams 2013).

Two final methodological recommendations: critical discourse analysis encourages ethnographers to detect how language reinforces power and inequalities (Blommaert and Bulcaen 2000). Although we did not use this methodology in the present study, we have applied it in other studies to understand how Western hegemony on medical practice is perpetuated through language, both in informal conversations and formal communications. It has been key in our understanding of the frictions present in patients' experience with HIV, menopause, obesity, and diabetes. And there is also Portes's invitation to look for "elements of social life" (values, norms, skills, and roles) that underly institutions and institutional change (Portes 2006). This is relevant for our framework, because it suggests constructive friction can occur at an institutional level.

CONCLUSION

In this paper we have presented a constructive friction framework that ethnographers can apply to understand friction processes. We have attempted to demonstrate the utility and robustness of the framework by applying it to a study on childbirth practices in Latin America, specifically the changing relationship between midwifery and Western medicine. We would like to conclude with a discussion that came up during the elaboration of the paper, and it's whether ethnographers should understand friction processes to necessarily *engage* in these processes—or whether *understanding* them is enough.

On one hand, understanding without engaging in friction processes does seem good enough, if we consider that it is already a novel thing to revisit past and present phenomena from the perspective of friction. Additionally, understanding these processes is not a passive exercise, if it is an exercise that inspires or becomes input for decision-makers. This is aligned with what some of our colleagues believe about not judging the social scientist's work solely on whether they are actively engaging in societal transformations. And it is also where we stand with our study on midwifery, considering we haven't engaged in the friction processes we're understanding.

On the other, it is provocative to think how our paper could be a call-to-action, a manifesto of sorts for ethnographers to not just understand, but advocate for constructive friction processes. This is relevant in the Global South, where some scholars argue practicing anthropology is inherently political, in the sense that we are studying "ourselves" or communities within our territory (Clarac de Briceño et al. 2016). An explicit example is the case of anthropologists working in conflict resolution and peace-building efforts in countries with severe civil conflict such as Colombia and South America (Castillejo 2017). It is also the stance of medical

anthropologists Nancy Scheper-Hughes and Paul Farmer, who have emphasized the role of the "engaged anthropologist" in mitigating health disparities and social inequalities.

The critical and methodological dispositions that we have described apply regardless of whether ethnographers wish to understand or to understand to engage. Also, the first step is *always* to understand unfolding friction processes in a structured way, which makes our framework essential regardless of the final purpose of the ethnographer.

ABOUT THE AUTHORS

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NOTES

1. In this paper we use the concept of Global South to refer to those regions of the world that in the 1950s were suddenly labeled as less developed and thus subject to expert and technical interventions: Asia, Africa, and Latin America. In the words of Colombian anthropologist and post-development thinker Arturo Escobar, "As Western experts and politicians started to see certain conditions in Asia, Africa, and Latin America as a problem, a new domain of thought and experience, namely, development, came into being, resulting in a new strategy for dealing with the alleged problems." (Escobar 1995, 6).

2. We conducted ethnographic interviews with independent midwives from Mexico, Colombia, and Argentina. The main objective of these interviews was to discuss the historic and present relationship between midwifery and Western medicine in Latin America. All independent midwives interviewed were aware the interview was being conducted for an academic paper.

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Friction to the Future!

Present-to-future is not a linear journey—it's a contestation over who is able to imagine and act toward their preferred futures. Presentations in this session showcase efforts to make this process of imagining available to all.

Discussant: Todd Carmody, *Gemic*

Grounded Models

The Future of Sensemaking in a World of Generative AI

TOM HOY, Stripe Partners
IMAN MUNIRE BILAL, Stripe Partners
ZOE LIOU, Stripe Partners

The promise of generative AI technologies is seductive to product leaders: frictionless research in which synthetic data can be both generated and analysed via a simple end-to-end UI, enabling teams to speed up research timelines and reduce costs. However, our evidence suggests we should be sceptical of these maximalist claims. Over the last 18 months our combined team of NLP data scientists and ethnographers has conducted a series of experiments to explore, assess and define the value of LLM-driven research techniques. First, we explore this value pragmatically, as new tools for sensemaking; and second, epistemologically, as we unpack their broader implications for ethnography. We demonstrate how ethnography can usefully "ground" LLMs in two "complex" worlds: that of the user and that of the organisation. We argue the future of research is not automation, but more collaboration between ethnographers and data scientists, as they better integrate their tools and ways of knowing.

Keywords: sensemaking, large language models, natural language processing, generative AI, cynefin framework

INTRODUCTION

In technology companies, ethnography has often had an uneasy, even subservient relationship to quantitative and data science research. It remains the case that "large-scale patterns drive decision making" (Levine, 2019). By comparison ethnographic research can be regarded as small-scale and inconclusive. Many teams perceive research as a necessary evil that "slows down" (Belt, 2019) the agile approach to product development, the inconvenient human factor in an otherwise frictionless loop.

A new wave of tools is being enthusiastically adopted to circumvent traditional user research and speed up product iteration. A / B testing capabilities are increasingly cheap, personalised and rapid, enabling product teams to jump ahead with their hypotheses and collect actual usage data rather than wait for a user research process to deliver. Research is squeezed in the process, often constrained by its tactical role within product development, and then ostracised for its inability to deliver timely results.

It is within this context that Large Language Models (LLM) have arrived. In recent years a range of natural language processing (NLP)-enabled tools have targeted the ethnographic market, either claiming to speed up analysis (e.g. Reduct) or scale up cultural datasets to increase decision making confidence (e.g. Motivbase).

In the last six months, the accelerating capabilities of generative models such as GPT-4 have made these assertions bolder, with some experiments producing results that call into question the need to conduct primary research in the first place (Argyl, 2022). Services like Synthetic Users leverage the latest models to enable researchers (and non-researchers) to define the user they want to interview, and then generate simulated responses to any question they care to pose.

The promise of these technologies is seductive to product leaders: frictionless research in which synthetic data can be both generated and analysed via a simple end-to-end UI, enabling teams to speed up timelines and reduce costs. As such, NLP poses a potentially existential threat to ethnographers working in corporate settings.

This paper argues there is no existential threat to ethnography (or primary qualitative research more generally). Through a series of experiments we demonstrate that the value of ethnography is not replaced by these new technologies, but rather augmented and clarified by them. The ethnographic skill set remains vital because it is capable of exploring domains that are, by definition, not comprehensible to these new tools. And we show why this is true for sensemaking across both organisational and user settings.

The paper shows how ethnography's value can be elevated by NLP. As the technology automates time consuming work, the ethnographer is freed to exercise their unique capacity for exploring complex domains. Exploring complexity, we conclude, is a highly desirable skill set in a world dominated by LLMs.

The History of NLP in the Social Sciences

Before we explore the implications for ethnography specifically, first we need to situate the history of these new capabilities in the wider space of social sciences and the problems they seek to address within them.

Though the current focus of the paper is on generative AI and its potential applications in ethnographic research, we need to understand the technology that sits behind it. NLP plays a vital role in providing the technical backbone for the text generation capabilities of the recent LLM tools.

Natural language processing (NLP) is the interdisciplinary field that seeks to analyse written and spoken language using computational approaches. It is especially useful when applied at scale to large volumes of data, the analysis of which is otherwise infeasible without considerable human effort and costs. In its early stages, NLP was predominantly used as a means for content classification based on rule-based heuristics and carefully curated lists of terms (LIWC, blacklists etc.) which are then matched against the document input. With the rise of deep learning and higher computing power in the last 5 years, the field has been increasingly growing with industry-wide applications ranging from sentiment analysis of product reviews, machine translation, detection of online offensive language to many other domain-specific use cases.

NLP has proved useful in the social sciences. NLP tools have been used to support the analysis of open-ended questions in surveys (Xu et al., 2022; Meidinger and Aßenmacher, 2021) due to its potential to mitigate the trade-off between obtaining rich data and manually coding many responses (Beeferman and Gillani, 2023). It has also been used to quantify inherent bias present in datasets. This is done by investigating word co-occurrences at scale which can be systematically assessed via word embeddings. Given the large amounts of data necessary to construct these, social scientists have analysed the resulting word representations as reflections of the cultural assumptions and social biases in the data (Lauretig, 2019; Nelson, 2021). Finally, NLP has long been linked to the task of modelling mental models as suggested by Plantin (1987). The rise of online forums and social media platforms allows the online representation of large communities of interest, thus providing validation to smaller in-person studies. In fact, recent works have shown the value of NLP to uncover community-wide views (Strzalkowski et al., 2020; Kaur et al., 2022).

Step-change to Large Language Models

Large language models have revolutionised the field of NLP and encouraged the adoption of data science-centric approaches in most fields and industries. One driving factor behind the acceptance of these tools is their accessibility to a non-data science audience. Examples of this include the simple chat interface provided by ChatGPT (OpenAI), and the integration of LLMs into the official Bing search engine for more tailored search results. This along with wider context windows and the recent capability to analyse multimodal input have been instrumental in the adoption of LLMs.

The success of LLMs is partly owed to the emergence of contextual word embeddings. These are dynamic vector representations of a word based on its meaning given a surrounding context. For example, the word "right" in the sentence "The justification is right" is different from "He dislocated his right arm" and should thus be encoded by different numerical representations so that the LLM can "understand" the distinction between the two. The progress from static to dynamic representations as well as the availability of vast online training data and computing resources have enabled the creation of large language models capable of generating fluent output.

Since their introduction, LLMs have been shown to consistently define new state-of-the-art performance across many NLP tasks that require natural language understanding (Barbieri et al., 2020) such as reading comprehension or question-answering where "superhuman" performance is achieved (Bowman, 2023). This step change in capability leads to questions about the importance of human involvement in automated ecosystems where LLMs already promise faster delivery and better results than human annotators. However, AI researchers such as Tedeschi et al. (2023) bring attention to the need to critically evaluate these models using reliable

metrics and realistic settings before deploying them as a replacement to human judges.

As LLMs were gradually adopted as conversational agents used for brainstorming, acting as a "user's creative and helpful collaborator" (BARD), academics began investigating the potential of LLMs' cognitive performance. In essence, this involves assessing the capability of an LLM as one would a human, for example via evaluation criteria adopted from the field of psychology: creative ability (Stevenson et al., 2022), reasoning (Binz and Schulz, 2022), personality testing (Miotto et al., 2022). In particular, Miotto et al. investigate GPT-3 by qualitatively assessing 3 dimensions (personality type, human values, and demographic characteristics) using established self-report tests such as the Human Value Scale (Schwartz, 2003) employed by the European Social Survey. The aim of the study is to uncover and understand the LLM personas created by varying the "temperature" parameter within the model, while keeping all others at their default value. Temperature controls the predictability of the generated text with values ranging from 0 to 1 where 0 ensures a nearly deterministic response and 1 induces significant randomness. They find that varying the temperature leads to model fluctuations across all the afore-mentioned dimensions. For instance, when asked what gender and age it identifies as in the prompt, the default GPT-3 identifies as a female entity in late twenties and increasing the temperature leads to a higher proportion of male gender responses and lower age. Similarly, other dimensions are impacted with more extreme tendencies exhibited the higher the temperature.

These experiments and the emergence of improved LLMs (like GPT-4) facilitated the potential creation of "synthetic users." Companies such as Feedback by AI and Synthetic Users deliver outputs to specific prompts that mimic human feedback. Synthetic data can be instantly generated by imposing specific criteria including profession, marital status and personality traits in accordance to the population a study requires. These platforms promise it is possible to glean user insights about your product or service while foregoing the costs and time needed for recruiting and interviewing real people.

Existing studies by Google (Weidinger et al., 2021) warn against the potential risks involved with LLM downstream applications. Word embeddings, at the core of all LLM operations, have been repeatedly confirmed to exhibit gender bias and lead to harmful representations for both BERT (Jentzsch and Turan, 2022; Touileb and Nozza, 2022) and GPT-3 (Lucy and Bamman, 2021). Moreover, recent work done by Kantar (2023) urges against the perceived value of synthetic samples and shows that experiments substituting human panellists lack insights into population subgroups or specific topics, and exhibit strong positive bias. This along with data privacy concerns and the lack of transparency of the data used to train these models are reasons to apply caution in LLM large-scale usage to avoid propagating social stereotypes and unfair discrimination.

Assessing the Value of NLP for Ethnographic Sensemaking

The potential for these technologies is wide ranging across the social sciences. But what are the implications for ethnographic and qualitative enquiry specifically? Stripe Partners' data science and ethnography teams have been collaborating on a series of experiments focused on applying NLP to sensemaking, a key aspect of the ethnographic research process.

We define Sensemaking according to Organisational Studies scholar Karl Weick (Weick, 1995). For Weick, Sensemaking is "the negotiation and creation of meaning, or understanding, or the construction of a coherent account of the world" (MacNamara, 2015). Sensemaking is a critical aspect of ethnographic research in corporate settings. It is the process by which we (and our stakeholders) make sense of both the subject we have been commissioned to understand, and the organisational endpoint where insights and recommendations will land, to arrive at a shared path forward. Sensemaking is "successful" when it is (a) true to the data (b) meaningful to the people for whom understanding is important, and (c) leads to the successful accomplishment of intended outcomes. This is what expands sensemaking beyond "analysis". Analysis focuses on the correct interpretation of data, but discounts the social dynamics of meaning creation, and, by extension, organisational impact.

For Weick, Sensemaking is a highly contextual, contingent process that can pivot on seemingly trivial moments. "Students of sensemaking understand that the order in organizational life comes just as much from the subtle, the small, the relational, the oral, the particular, and the momentary as it does from the conspicuous, the large, the substantive, the written, the general, and the sustained. To work with the idea of sensemaking is to appreciate that smallness does not equate with insignificance. Small structures and short moments can have large consequences." (Weick, 1995)

Sensemaking is a critical aspect of the ethnographic research process from three perspectives. First, our research expertise lies in observing and capturing "the subtle, the small, the relational, the oral". These phenomena are rarely represented in existing data and documentation, and are usually illegible to corporate systems. Businesses recognise the value of this knowledge to improve decision making, which often makes it the focus and rationale of ethnographic study.

Second, because the questions ethnographers explore are complex, and the insights difficult to "prove", successful practitioners engage and enrol stakeholders in their research process, so that the resulting findings are meaningful and "embodied" by the people who will enact them (Roberts and Hoy, 2015). By engaging in research as a social process of sensemaking rather than assuming the facts will "speak for themselves", ethnographers ensure their work has influence and impact.

Third, as Weick argues, tacit social codes and dynamics are just as significant within organisations as they are outside of them, and thus it is best practice for ethnographers to study the organisational context they are seeking to impact as part

of the sensemaking process. What they learn helps them to filter and shape their work to maximise its utility and influence within that specific organisation.

It is within these sensemaking contexts that the contribution of NLP will be judged.

NLP EXPERIMENTS IN SENSEMAKING

Over the last 18 months Stripe Partners, an innovation consultancy based in London, hired two expert NLP practitioners to join its data science practice. At Stripe Partners, our mission is to create a new discipline at the intersection of social science, data science, and design that delivers more effective product innovation for technology-led clients. NLP was identified as a practice within Data Science that is well placed to combine with and complement the more qualitative forms of research practised by ethnographers in the business, given its focus on language and, by implication, human culture and systems.

To explore the possibilities, we ran 15 experiments utilising LLMs across multiple client projects, using a variety of NLP techniques.

Here, we will share three specific experiments across a spectrum of ambition. The first experiment seeks to understand the value of NLP as a discrete analytical tool for the ethnographer. In the second we explore how NLP could be used to increase confidence in qualitative data as part of a broader ethnographic sensemaking process. Finally, the third experiment evaluates the possibility of using NLP to "replace" the ethnographer within a closed loop, automated sensemaking system.

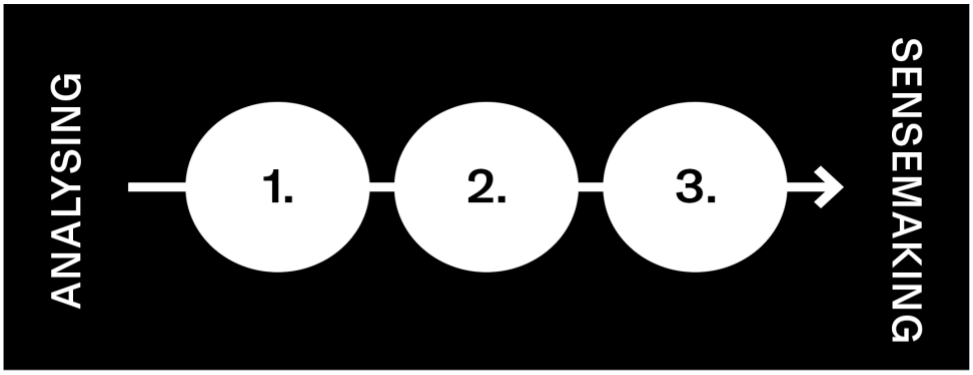

Figure 1. Overview of the three experiments discussed in this paper. Photograph © Stripe Partners.

Experiment 1: Speeding up Analysis of Large, Low-Context Datasets

The Experiment

The client we were working with was a healthcare company that asked us to provide an overview of the patient experience regarding existing medical treatments for a specified condition. Following the success of previous interdisciplinary studies which used online data to gauge patient attitudes (Brezulianu et al., 2022) and reactions to new treatments (Yadav et al., 2018), we identified a healthcare dataset of hundreds of posts and users as candidates for analysis. In our first experiment, we showcase the potential of LLMs to speed up analysis of large amounts of data.

Often in qualitative studies researchers are confronted with large datasets of low context data, such as open-ended survey questions or anonymous postings on online forums. The process of manually analysing these corpora is time consuming, and is often conducted by more junior researchers. Thanks to its conceptual simplicity (it classifies text as negative, neutral or positive), we propose sentiment analysis as a high-level tool to automatically synthesise such data. As its outputs are immediately interpretable, this method can be a support to social scientists for dealing with low-context datasets.

We used both BERT (Google) and GPT-3.5-turbo (OpenAI) as our testing baselines and discussed the need for human-in-the-loop evaluation in both LLMs. We observe that despite the improved performance of GPT over the older BERT model, both default models exhibited shortcomings which can be overcome through critical human evaluation via error analysis and few-shot tuning.

Error analysis was carried out to identify data patterns where the sentiment analysis model was consistently incorrect. For example, we observe that BERT overly classified instances as negative when patients self-disclose their condition, whereas GPT failed to detect negative instances when painful secondary symptoms or targeted opinions about medicine are discussed. We note that this evaluation can lend itself to any participant within the team since the task does not require any specialised knowledge to assess model mistakes. Once a set of representative examples is collated, this can be used for refining model judgement through fine-tuning.

Few-shot training is a fine-tuning process of re-training an off-the-shelf model for a specific task or a specific domain by "showing it" a small sample of annotated human judgements. While for older models such as BERT, fine-tuning remains a data science dominated approach, recent LLMs allow for a more collaborative interaction between data scientists and ethnographic researchers enabled by prompting techniques via the conversation interface.

As recent work has shown, the amount of information within a prompt and its style have a significant impact on the LLM performance (Shen et al., 2023). Chain-of-thought reasoning (Wei et al., 2023) is an emerging trend that equips a prompt

with a set of intermediary steps which decompose a complex task, similar to a human thought process. We have experimented with varying levels of prompt complexity, and concluded that the prompts exhibiting chain-of-thought reasoning and including task demonstrations yielded the best accuracy. Our final prompt (See Table 1) for Sentiment Analysis in the healthcare study included a brief note on the data description, a rigorous task formulation where each possible label was defined with reasoning guidelines and finally, reasoning-enhanced examples. The construction of these components is an example of how ethnographic researchers and data scientists can efficiently collaborate to understand large amounts of data.

Table 1. Prompt Example for the task of Sentiment Analysis in Healthcare and Evaluation of prompt complexity.

<table>
<tr><th colspan="2">Prompt Example</th></tr>
<tr><td>Data Description</td><td>You will be shown a Sentence extracted from a microblog thread discussing the [condition].</td></tr>
<tr><td>Task Formulation</td><td>Please classify the Sentence as negative, neutral or positive.</td></tr>
<tr><td>Reasoning Guidelines</td><td>• Negative: The Sentence contains information about painful user experiences OR declining health OR negative opinions about products.
• Positive: The Sentence contains information about happy user experiences OR improved health OR positive opinions about products.
• Neutral: The Sentence does not contain any of the above.</td></tr>
<tr><td>Example with Reasoning</td><td>Sentence: It's been my experience that if I'm feeling a bleed starting then that means [treatment] alone won't stop it.
Justification: negative opinion about product
Answer: negative</td></tr>
<tr><td colspan="2">BEFORE: Tested Example with Simple Prompt (Data description + Task formulation)
Sentence: That might be why [treatment] doesn't completely do it for me.
Answer: neutral</td></tr>
<tr><td colspan="2">AFTER: Tested Example with Complex Prompt (Data description + Task formulation + Reasoning Guidelines + Examples)
Sentence: That might be why [treatment] doesn't completely do it for me.
Justification: negative opinion about product
Answer: negative</td></tr>
</table>

In Table 1, we include tested examples of before and after prompt enhancement. Based on the simple prompt, the model made wrong assessments of medicine-targeted sentiment: [treatment] is negatively discussed in the context "That

might be why [treatment] doesn't completely do it for me.", but GPT-3.5 incorrectly classifies this as neutral. We observe that this error was rectified when the model was trained on a complex prompt. With the help of manually coded examples (known as "few shot prompting"), GPT-3.5 now correctly evaluated the testing instance and assigned the correct sentiment ("negative") and appropriate justification ("negative opinion about product") which helps improve model transparency.

Discussion: NLP Provides Researchers with a Useful, Standalone Analysis Tool

Experiment 1 demonstrates that with the correct prompts, NLP is an excellent tool for speeding up the analysis of low context datasets within the context of a wider sensemaking process such as open-ended surveys, social media discourse or remote interview / diary transcripts.

The accessibility of tools such as ChatGPT, Bing, Claude and Google Bard enables researchers with limited training in computer or data science to fast-track discrete analytical tasks when they are confronted with large qualitative datasets. This has significant benefits for ethnographers under pressure to "speed up". If used judiciously for specific tasks within a wider process, NLP can definitely save time.

In this experiment we utilised sentiment analysis, but there are other forms of analysis (see Table 2) that we have experimented with and can provide value for discrete tasks within the context of a wider sensemaking process. Researchers should consider utilising these tools when the following analytical tasks are relevant.

However, it is vital to prompt these tasks correctly. Our experiment taught us it is critical for researchers to "train" the models with (a) precise definitions of any categories they want the analysis to incorporate and (b) several examples of the correct analysis. This is called "few shot prompting", and dramatically increases the quality of the analysis.

The best way to achieve this successfully is by conducting manual analysis of a limited subset of the data yourself (4-5 snippets is usually sufficient). Where possible, focus this manual analysis on esoteric edge cases, where definitions and categorizations are likely to be contested and / or are driven by specific requirements of the project. This may take some trial and error. When the model has generated its response, manually analyse a subset of the response to ensure it meets quality expectations. If it doesn't then rewrite the prompt with more instances of manual analysis that are focused on correcting the errors observed and/or making further clarifications of definitions.

Table 2. Overview of NLP analysis types, their recommended usage and example use cases

Analysis Type	Useful to…	Example Use Case
Sentiment Analysis	…determine the sentiment or emotional tone of a piece of text, such as positive, negative, or neutral. It aids understanding of the overall opinion or attitude expressed in the text.	Analysing public forum posts to assess the attitudes towards a new product (see example above)
Topic Modeling	…discover abstract topics within a collection of documents or text corpus. It helps identify the main themes or subjects discussed in the text without prior knowledge of the topics.	Analysing online reviews to capture the main pain points experienced when using a new service
Text Classification	…assign predefined categories or labels to text documents based on their content. It is useful for tasks such as spam detection, sentiment classification, and document categorization.	Analysing the prevalence of user needs identified through interviews within wider social media discourse
Language Translation	…translate text from one language to another while preserving the meaning. It enables communication and understanding between individuals who speak different languages.	Translating foreign language interview transcripts into legible language
Text Summarization	…generate concise and coherent summaries of longer texts, capturing the main ideas and important details. It helps in digesting large amounts of information quickly and efficiently.	Creating short summaries of interview transcripts highlighting key topics covered
Semantic Search	…retrieves a list of evidence semantically matching a specified query from a large body of documents. It improves standard search accuracy as it does not rely on strict word overlap.	Finding evidence within a set of articles to increase confidence in an emerging finding

The experiment discussed was conducted using Google BERT and ChatGPT 3.5 Turbo. Our expectation is that newer models such as GPT 4 will reduce the requirement for few shot prompting as their overall understanding of language improves. However, for reasons we will expand on next, we believe that intelligent prompting and manual checking of analysed results will remain critical tasks for the foreseeable future, as part of a broader sensemaking process.

Experiment 2: Increase the Impact of Qualitative Data

The Experiment

Our second experiment explored how LLMs can be used to increase confidence in the ethnographic sensemaking process through an open-ended enquiry. Ethnographic studies impacted by strict recruitment criteria and /or small samples can especially benefit from analysing a wider online community using NLP methods.

In this instance our research goal was to understand the advantages and disadvantages introduced by different medicine types to patients diagnosed with a specified rare condition affecting less than 0.0001% of the population worldwide. In our case, the project focused on investigating the experiences of these patients in a specified country, which significantly narrows the pool of candidates. We conducted interviews with a dozen subjects, and then enriched our analysis by incorporating hundreds of online patient conversations on the topic. Particularly, we follow the success of other works employing social media platforms for medical applications (Park et al., 2018) and construct an extended data sample from the subreddit "r/[condition]", a forum used by patients from across the globe to share their experiences about this condition. The data is collected using the API of the Reddit microblogging platform.

This approach makes use of topic modelling, an NLP clustering technique that groups semantically similar content, i.e. posts which discuss the same topic. We employed BERTopic (Grootendorst, 2022), a topic modelling algorithm based on large language model BERT. An LLM-enriched approach such as BERTopic can uncover high-level connections between similar concepts (e.g. "syringe" and "injection") by making use of its external knowledge as opposed to just relying on word overlap.

Similar to sentiment analysis, the application of topic modelling must be appropriately tuned to each dataset. This includes specifying model parameters such as the number of resulting topics or the maximum size of topics. This is often an iterative process which requires careful inspection of the topics in each round. Additional human analysis can be conducted to place misclassified posts in correct topics, a process inspired by computational grounded theory (Nelson, 2020). The last step of the topic modelling focuses on summarising the resulting topical groups of posts. We include examples of extracted topics in Table 3.

Unlike Experiment 1, this method's output needs to be grounded with insights from the ethnographic project to be useful. Ultimately, some topics produced by BERTopic are not useful, while some are valuable to complement or augment the knowledge gained from interviews. Assessment of a topic's potential is determined by its ability to answer the research questions posed by the client (i.e. advantages and disadvantages to different medicine types) and its suitability to the target users the client needs (i.e. patients from a specified country).

Table 3. Examples of topics generated by BERTopic topic modelling tool in healthcare. Each topic is evaluated with respect to its usefulness for the ethnographic studies (evaluation) which is then supported by the analysis.

#	Topic Description	Evaluation	Analysis
1	The topic focuses on discussion about negative aspects regarding modes of administration: 1. Subcatenous administration: Some users disclose accounts of muscle pain and skin irritation around the injection site (belly, arm). Other users express feelings of nervousness for subcutaneous administration in the belly. 2. Vein administration: Accounts of painful /broken veins are shared.	Useful for complementing ethnographic studies	This topic came up in the qualitative findings based on second-hand accounts (nurses) of the symptom, but did not surface directly in interviews, so was discounted until its importance was highlighted through the NLP analysis.
2	The topic focuses on issues around trusting how and whether a specific medicine works; these views are expressed by both users and potential users.	Useful for validating ethnographic studies	Both qualitative (interviews) and quantitative data (hundreds of Reddit posts) reveal the need for trust that a medicine works.
3	The topic covers the experiences of patients from different demographics around the world with respect to medicine access.	Potentially useful	Medicine access is highly subjective to the country the user patient is in. The topic was ultimately not useful to ethnographers as it did not target the patients from the country specified by the client.

The useful topics generated by BERTopic have a dual purpose: (1) identify emerging information which has not been previously surfaced in the field interviews (complement) and (2) provide confidence supported by big data to already known results (validate). An example of a useful topic is Topic 1 in Table 3: our study on the Reddit corpus uncovered that the administration of a type of medicine leads to skin irritation for some patients; this aspect was not immediately visible in the interviews conducted by the ethnography researchers. Also in Table 3, we find Topic 3 as an example of a topic uncovered by NLP findings which is ultimately evaluated as useless by the qualitative team: while addressing an important aspect of the patient experience (medicine access), this aspect is highly dependent on the medical system

in each country; consequently, the topic does not bring any value because it does not target the population specified by the client.

Discussion: NLP Can Increase Confidence in Qualitative Work, but Always Requires "Grounding"

If Experiment 1 taught us that LLMs require prompting to produce high quality analysis, a more fundamental challenge is exposed in Experiment 2: the "symbol grounding problem" (Harnard, 1990). To be meaningful and useful, language must be deployed within a specific context. The symbol grounding problem points out the fact that large language models operate in closed, self-referential systems that do not account for shifting human contexts. As Bender and Koller explain, "language is used for communication about the speakers' actual (physical, social, and mental) world, and so the reasoning behind producing meaningful responses must connect the meanings of perceived inputs to information about that world." (Bender and Koller, 2020). Because these statistical models have become deracinated from the world that produced the data to train them, this process of "grounding" must take place to generate meaningful, useful outputs.

In Experiment 1, providing examples of correct analysis drastically improved the quality of the automated LLM analysis. Because the discrete task was to correctly categorise the sentiment of different sentences, the quality of the analysis could be assessed without recourse to the specific requirements and context of the study. To put it another way, wrongly categorising a statement as "neutral" when it was, in fact, "negative" requires only a good grasp of (English) language and, at times, an understanding of the linguistic vagaries of online healthcare discourse. As such, it was possible to objectively assess and improve the quality of analysis within the closed system of language.

In Experiment 2, however, it was not sufficient to increase the model's competence with language. Here, the intent was not to speed up analysis, but to increase confidence in the ethnographic work by expanding the surface area of data to incorporate public online forums. The BERT-driven topic modelling of these forums successfully identified multiple themes relating to the treatment of study that were not identified in the qualitative work, and it could tell us which themes were most common. However, presenting our client with the most popular themes was of limited value: many were esoteric and/or irrelevant to the requirements of the study.

This begs the question, how did we know which topics are esoteric or irrelevant? First, from our ethnographic work we have a rich, behavioural, up to date understanding of the condition and treatment, which we can use to assess what themes are coherent with this more holistic understanding of the patient experience, and which are anomalous. Second, we have a rich understanding of the organisational context. We understand the specific sensibilities of each stakeholder; the politics of how decisions are made; the wider corporate strategy and context.

These are the "small" (Weick, 2005), nuanced contextual layers that are entirely invisible to an LLM, but are critical to producing work of value.

In this experiment, knowledge of these two contexts enabled us to identify topics that either (a) validated existing insights from the ethnographic work or (b) helped us to identify complementary, parallel insights. Leveraging knowledge of these domains maximises the value of NLP, strengthening ethnographic work by either validating emerging insights or highlighting lateral, complementary insights.

The NLP analysis therefore had the effect of increasing client confidence in the project, augmenting the data gathered through the ethnography. This experiment would not have been successful, or even possible, without the involvement of the researcher who triangulated the range of topics identified by the LLM to produce work that is relevant and impactful. In this sense these LLM tools can augment and validate the work of the researcher, but cannot replace them.

Experiment 3: Create Closed Loop System to Automate Sensemaking

The Experiment

Our client was a content platform that matched billions of users with billions of pieces of video content. The team we were working with was focused on improving video recommendations for would-be travelers exploring potential holiday destinations. The current recommendation system was judged to be poor for travelers using videos to inform their planning. In this third experiment we wanted to see if it was possible to use NLP to identify the underlying needs that different videos addressed, and then use that insight to further improve the recommendation system.

The research team curated a corpus of relevant videos spanning different formats, styles, creators and subjects. This is then used to collect a larger text-based dataset comprising 40k comments posted about these videos which formed the basis for the NLP analysis. We focused on comments (versus the video content itself) because they are user-generated, and therefore the best available qualitative signal of value from a user perspective.

This experiment also used approaches such as sentiment analysis and topic modelling which are ideal for initial exploration of the data (Bottom-Up), but additionally introduces new tools such as semantic search better suited for top-down analysis. A Top-Down approach starts with a concept (in our case a content need) and allows for a narrower search of the data by retrieving comments which reflect the concept.

We find that while topic modelling across the set of comments in our corpus of videos reveals the nature of conversations being generated (See Table 4 for some examples of topics), these topics are too general and do not in themselves identify specific user needs. It was by interviewing users qualitatively who had also consumed the videos that we could identify what to "look for" in the comments. Interviewing

future and past travellers allowed us to uncover 11 criteria, called travel needs, that an ideal travelling video should satisfy based on its content and creator. Once the travel needs were defined, they were used to shift the focus from a bottom-up exploration to a guided Top-Down process. For example, Topic 3 in Table 4 discusses recommendations for relaxation venues, often posed as questions. Insights from the interviews revealed affordability as an important user need for assessing a potential destination /experience. In light of this, Topic 3 now proves to be representative for the Affordable need as it contains comments asking for practical advice, a key notion for this criterion. Table 5 includes a few illustrative comments uncovered by inquiry models and semantic search; the comments discuss aspects such as accommodation, food and activities which are important aspects a video needs to cover in order to be 'affordable' to potential travellers. Following a similar approach, we find that 8 out of a total of 11 travel needs discovered in the qualitative study can be partially predicted using the video comments.

Table 4. Examples of topics generated by topic modelling from Video Comments which are accompanied by high-level analysis on their potential use.

Bottom-Up Approach		
#	**Topic Description**	**Analysis**
1	Discussion focuses around food and recommended cuisines (Cuban, Jamaican) and dishes (sandwich, tacos).	The topic uncovers food as an important aspect to potential travellers which can be used to draw inspiration.
2	Discussion includes statements about how much people love or like the video, vlog or channel (and aspects in it like editing).	The topic captures the emotional connection inspired by the video and can be used to bridge the role of comments to other potentially useful non-linguistic features such as video style or creator.
3	Discussion focuses on relaxation venues: clubs, parties, pools, lounges. Comments are often posed in question form such as users asking about recommendations or asking for practical advice such as the budget needed.	The topic caters to the research stage of the user's planning journey because it generates many questions within its comments.

Table 5. Example of comments extracted from comment video sections which are representative for the predefined 'Affordable' travel need.

Affordable = "I need to be able to easily find out about a destination / experience to assess how feasible it is for me, and how to make it happen"	
Video Comments	**Relevant Aspects**
Hey, how much were the yacht and the jet skis?	Activity
What was the name of the airbnb you stayed at and how much did it cost?	Accommodation
Tell us how $$ much $$ each taco plate costs.	Food

Despite our efforts, the predictive power of comments is limited. First, not all travel needs are legible, and second, additional signals must be identified for the recommendation system to correctly categorise a video. To mitigate such cases, in the second part of the experiment we constructed a database of complementary signals that can be extracted from the platform's metadata using their API. An example of a travel need that cannot be predicted is Expert defined as "I need to see content from people who are experts in the subject so I can trust what I'm watching is the best". As this travel need is best described in terms of the video creator, nonlinguistic metadata attributes such as the verified status of the creator and the number of user likes are a better validation criteria than comments. Even for travel needs that can be partially predicted by comments, we recommend strengthening the confidence of our evaluation by considering attributes beyond comments. For instance, affordability can be tested against whether the video description provides links to the places discussed within the video.

Discussion: Translating between Complex and Complicated Problems

Experiment 2 introduced us to the fundamental limitation of NLP for sensemaking, namely the "symbol grounding problem." Experiment 3 further elaborates the implications of the symbol grounding problem when attempting to operationalise and automate NLP to create a closed loop system to improve the performance of a recommendation system. In the first part of the experiment, NLP was deployed to identify signals in user comments that reveal why a particular video resonated with its audience. The resulting topics identified were superficial because the LLM did not have any insight into the deeper motivations of people who found value in the videos.

The complementary in-depth interviews enabled researchers to probe deeper and identify the underlying travel needs that specific videos addressed for viewers. This

data was unavailable to the LLM because it has not been surfaced and captured before. Once these more nuanced, situated motivations– or "needs"– were identified through interviews with research participants, it was possible to re-categorise the video comments around the identified needs. Once it "knew" the needs through our prompting, the LLM could identify 8 /11 needs in the comments. This experiment demonstrated the value of primary qualitative research, to discover and interpret nuanced, emergent patterns in specific contexts that are not included or visible to the underlying models powering LLMs.

In the second part of the experiment we explored whether it was possible to automatically predict whether a specific video was delivering against the pre-defined needs using only the comments as an input. Here, we discovered that while the comments do provide sufficient signal for a minority of needs, it was critical to add additional signals, including language-based signals (e.g., transcript, title) as well as non-linguistic metadata (e.g., creator verification, upload date, view count, subscription numbers) to more confidently predict that the video was addressing a particular need. This second dimension raises the question of how much "signal" language alone provides, and highlights the dimension of ethnography that extends beyond language to encompass the observation and analysis of complex, non-linguistic phenomena through "thick description" (Geertz, 1973). More broadly, it points to the increasing complexity of the consumer environment, and the requirement for ethnographers to be more than "the voice of the user" and critically engage with the deeper socio-technical systems that shape behaviour (Anderson et al., 2012).

David Snowden's Cynefin Framework (Snowden and Boone, 2007) usefully distinguishes between the growing importance of solving "complex" problems, in contrast to the more predictable "complicated" problems that are already legible to existing systems. Complicated problems can be addressed through expert knowledge and rules, what Snowden calls "known knowns." Complex problems involve unknown unknowns and are characterized by emergent conditions, non-linear dynamics, and unpredictable human behavior.

> "Complicated problems can be hard to solve, but they are addressable with rules and recipes, like the algorithms that place ads on your Twitter feed. They also can be resolved with systems and processes, like the hierarchical structure that most companies use to command and control employees. The solutions to complicated problems don't work as well with complex problems, however. Complex problems involve too many unknowns and too many interrelated factors to reduce to rules and processes." (Kinni, 2017)

In this sense, matching user needs to relevant travel videos is a complicated problem when a data scientist or engineer already knows what the viewers' needs are. But to identify what those needs are in the first place, that's complex.

Experiment 3 therefore further highlights the extent to which machine understanding of contingent, specific, human domains is limited. GPT-4 may be trained on 60 billion parameters, but that is still miniscule compared to the dynamic, emergent, multi-faceted dimensions of human culture and behaviour. The role of ethnographers is to explore these complex problems and attempt to translate them into complicated ones. In this case, that was making the underlying value of different travel videos legible to a recommendation system.

Before, our client's question of what needs do travel videos address was a complex question; now we have uncovered and mapped those needs to concrete, machine-legible attributes, both linguistic and nonlinguistic. We have translated the problem into the complicated domain (that is until culture evolves sufficiently to make this illegible again). Once in the complicated domain and solvable with pre-existing data, it is possible for engineers to translate these into repeatable processes that can be automated by systems like the recommendation engine in our example.

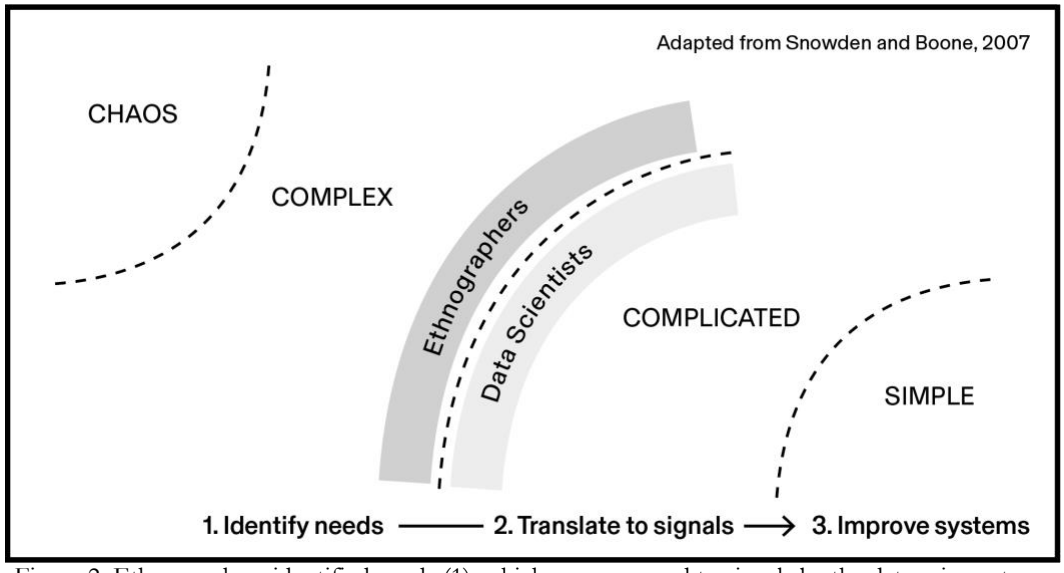

Figure 2. Ethnographers identified needs (1), which were mapped to signals by the data science team (2), before being implemented into the recommendation system by engineers (3). © Stripe Partners.

These models are incapable of "sensemaking" when it is critical to account for these "complex" domains because they are, by definition, not yet legible to them.

Ethnographers, in contrast, are well placed to explore the uncharted fields that are not represented within structured or unstructured datasets. Working with data scientists, ethnographers should seek to translate insights from these complex domains into complicated domains, by identifying existing or new signals that are legible to machine systems (including LLMs). Focusing on this intersection between complex and complicated showcases ethnography's strengths, and helps ethnographers clearly articulate the value of ethnography within their organizations.

CONCLUSION: ETHNOGRAPHY AND LLMS TODAY AND TOMORROW

Language, divorced from humans, is a closed, self-referential system. Large Language Models scale this system by training it on a vast corpus of data. They use statistics to predict the most likely linguistic response to a given query. Because they use pre-existing datasets to solve queries they are, by definition, complicated systems.

LLMs are optimised through human reinforcement learning. In practical terms this means people are paid to review possible responses to a given query and tell the machine which option makes most sense. To determine what "makes sense" these human assessors implicitly draw on their nuanced understanding of culture, ethics and expertise specific to their personal contexts. They draw from complex, human domains.

It is simply not feasible for LLMs, via human reinforcement learning, to always, already scale to every evolving complex context. This is why the ethnographer is in a resilient position: there is always uncharted territory to explore. And more importantly, businesses will always be interested in complex domains because they are a source of competitive advantage. In short, there is a strong motivation to map unchartered territory first and integrate it into your operating model before your competitor does.

Rather than replace ethnographers, LLMs can complement and accelerate their work as they explore complexity. As our experiments demonstrated, when deployed as an analytical tool by researchers and data scientists embedded in a wider sensemaking process, NLP can offer significant value.

We learned from our first experiment that when ethnographers are faced with large, deracinated healthcare datasets to analyse, LLMs can speed up repetitive analytical work through a range of approaches. But only if given sufficient context and precise categories through intelligent "few shot" prompting.

In the second experiment we learned how ethnographers who harness LLMs as part of their toolkit are better equipped to surface new insights and connections to complement their work, increasing confidence in their qualitative methodologies. But only when the ethnographer applies their nuanced, contextual understanding of the user and organization to parse and iterate on what is and isn't relevant.

The third experiment explored the extent to which LLMs can predict what travel videos are valued by users through an analysis of user generated comments. But it was only once ethnographers had decoded a complex space to teach the system what to "look for", including complementary non-linguistic attributes, that those predictions became prescient.

LLMs are valuable to ethnographers, but they can't intuit the dynamic social, cultural, political factors that shape value and meaning. In this sense they clarify the opportunity for the ethnographer to be the critical bridge between the "complex" worlds they explore and the "complicated" products and services that their work informs.

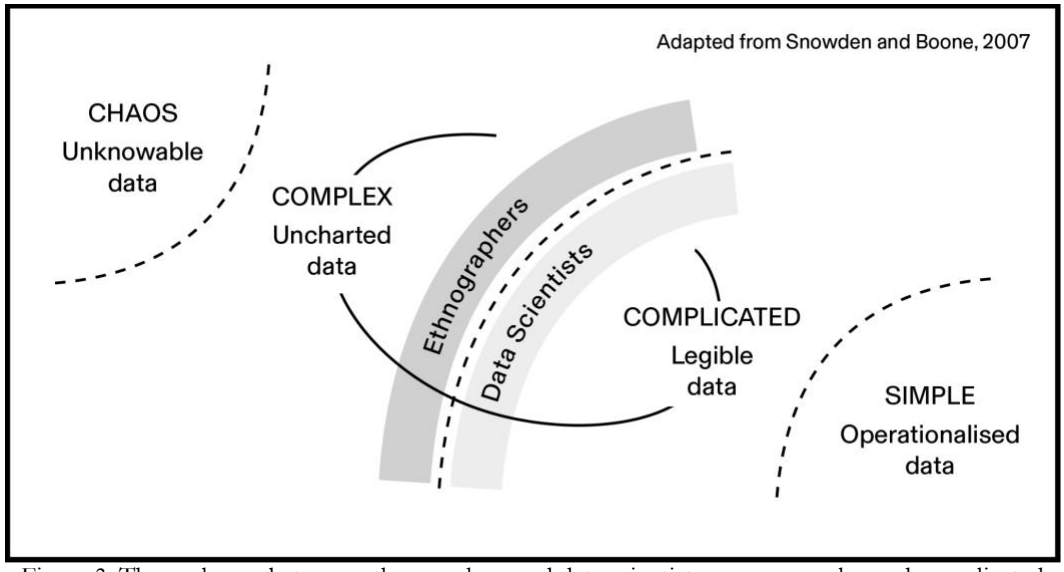

Figure 3. The exchange between ethnographers and data scientists across complex and complicated domains. © Stripe Partners.

The increasing capacity of LLM's has highlighted more precisely what researchers are uniquely capable of doing. As the relative value of ethnography is clarified, we foresee a new breed of data science-literate ethnographers emerging, who are able to work directly with LLMs (or collaborate more closely with data science colleagues on tasks that require more expert translation.)

In summary, ethnography can "ground" LLMs in two worlds: that of the user and that of the organisation. By understanding what is meaningful to users we can parse what kinds of clusters, classifications and searches are truly relevant. And by understanding what's meaningful to organisations we can reframe and combine outputs to create greater impact.

LLMs have the capacity to help "scale" qualitative work, but not through an automated, closed loop platform. It is only when ethnographers and data scientists work closely together, skillfully adapting their tools in conversation with these worlds, that their true value is realized.

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NOTES

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Images & Imaginaries

Reflections on a New Paradigm of Ethnographic Images in Business

ENYA TRENHOLM-JENSEN, *Gemic*

Harwell, Drew. A collage of AI-generated faces offered for sale (Icons8). 2020. The Washington Post. https://www.washingtonpost.com/technology/2020/01/07/dating-apps-need-women-advertisers-need-diversity-ai-companies-offer-solution-fake-people/

This presentation delves into the speculated impact of AI-generated images on ethnographic practice. Navigating through the data privacy challenges associated with sharing respondent photos with clients, AI-generated images offer a unique medium for documenting and creating ethnographic imagery within a business context. However, this innovation introduces a new form of friction: where should the boundary be drawn between authentic representation and manipulation of reality? And what implications might this have on our practice at large? This presentation aspires to initiate a dialogue, encouraging practitioners to contemplate their role in adopting this technology.

Enya Trenholm-Jensen is an anthropologist and cognitive semiotician at Gemic, where she works on projects across industries, from CPG to social technology. Her original research, including topics such as soft power and subcultures, has honed her ability to translate complexity into coherence.
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Fluidity and Friction

An Experiment in Ethnographic Foresight

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KAT LEE, Intuit Inc.
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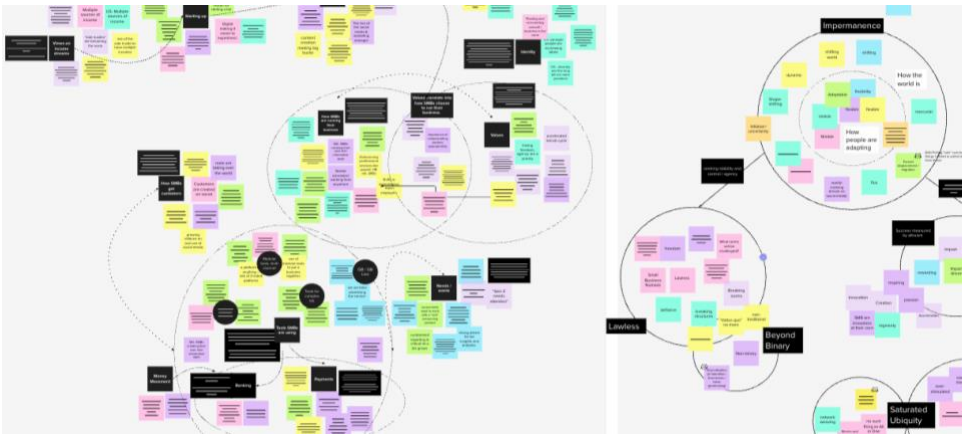

Foresight diagramming. Image Credit: Erin Duncan

Ethnography can be a divining rod for the future. Though speculative, the study of cultural signals to seed foresight creates a rich, provocative perspective that is difficult to dismiss, even in an always-be-shipping business context. Our presentation is a journey into our team's nascent foresight practice and our discovery of a secular trend that is creating friction for all of us, and in particular, for organizations that depend on clear, rectified data. 'Beyond Binary' encapsulates the social sea-change taking place as identities are becoming increasingly fluid. Boundaries are dissolving, liminal spaces expanding. Language and meaning are being reclaimed, remade. We may be nearing the precipice of an organizational identity crisis. What are big data analytics in an era of mercurial data? How will we remake and recalibrate our tools and methods for understanding humanity at scale?

Erin Duncan is a design research manager at Intuit QuickBooks. She finds purpose in understanding and advocating for small businesses, using insights to amplify their voices to inspire teams to build meaningful solutions to meet their needs.

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Anticipation for Grand Challenges

An Ethnographic Study of Future-Making Practices in a Technology Company

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Visions that highlight new technological capabilities often depict frictionless futures in which data, information, resources flow seamlessly. These visions suggest that our most pressing challenges could be solved with technological fixes. However, some challenges cannot be solved by technology alone. In recent years, grand challenges have gained attention in industry and academia, with organizations pledging to address large-scale, complex, and intractable societal problems. While technoscientific advancements are typically seen as the key to achieving these goals, a more critical and systemic approach that starts with imagining alternative visions is required to address the multi-faceted nature of grand challenges. We argue that the intersection of foresight and design could provide a rich ground for fostering new ways for making alternative futures in technology companies. In this paper we explore the role of future-oriented design practices in addressing grand challenges within a large multinational conglomerate. Drawing from ethnographic research conducted in the company's Research and Development (R&D) Center in the USA, we find that grand challenges inform research and development strategies in the organization and shape the future visions they create and disseminate. We argue that while the organization shifts its R&D strategy to address grand challenges, the role of future-oriented design becomes increasingly important. We also identify the frictions that arise when introducing future-oriented design practices and explore the evolution of these practices in response to these frictions. Furthermore, we argue that future-oriented design practices explicitly showcase how pressing grand challenges are and invite stakeholders to engage with futures more critically. Keywords: corporate foresight, design futures, organizational ethnography

INTRODUCTION

Visions that highlight new technological capabilities often depict frictionless futures. In such visions, data, information, resources flow without any disruption. People, things, spaces are connected to one another seamlessly. These visions not only show what emerging technologies might enable, but also what society might look like. These visions prompt discussions about possible futures ahead, and surface our hopes and dreams, worries and fears about what might be. They surface conflicts, both present and past, and open up debates about potential implications of emerging technologies. These visions are not only illustrations of possible futures, but also inform what futures get made. Ideas and images of the future influence purposeful future-oriented human activity by informing decisions that are made in the present, which eventually play a role in the realization of that future (Voros 2007). This mechanism in which future imaginaries shape the present-day actions is

explained by the concept of sociotechnical imaginaries. Jasanoff and Kim (2015, p.322) describe sociotechnical imaginaries are "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology". In these imaginaries, technologies are presented as solutions to complex, societal challenges in domains such as smart cities (Sadowski and Bendor 2019), energy (Sheila and Kim 2013) and food security (Carmen, Lindberg and Selfa 2020). However, technological solutions alone could fail to address the multi-faceted and interconnected nature of such challenges.

In recent years, "grand challenges" have attracted increasing interest in industry and academia. Companies pledge their commitment to solving large-scale, societal and environmental challenges ranging from mobility to food security, from poverty to climate change. Grand challenges (GCs) are defined as large-scale, complex and intractable societal level problems (Ferraro et al. 2015; Mair et al. 2016, Stjerne et al. 2022, p. 141). These challenges do not have clear solutions (Grodal and O'Mahony 2017, p. 1801) and cannot be solved by easy fixes (Porter, Tuertscher and Huysman 2020, p. 248). Thus, tackling GCs requires long-term and continuous commitment (George et al. 2016) by a constellation of actors across institutional and disciplinary boundaries. The orientation towards GCs can be observed in the field of design. Scholars and practitioners call for reformulating design for adapting to the 21st century in order to address these large-scale systemic challenges, sometimes called wicked problems (Irwin 2015; Teixeira 2017; Norman and Stappers 2015) and to contribute to public good (Junginger 2018). Furthermore, orientation towards the future, or *not-yet-existing* is evident in design. In the Design Thinking, Design Theory Series foreword, Friedman and Stolterman claim that "within the framework of design, we are also challenged to design for extreme situations, for biotech, nanotech, and new materials, and design for social business, as well as conceptual challenges for worlds that do not yet exist such as the world beyond the Kurzweil singularity—and for new visions of the world that does not yet exist" (2017). This broadens the scope of design both temporally and spatially: designing for systemic change involves taking more stakeholders beyond the individual user, even future generations, into consideration, and imagining long-term futures.

CRITICAL FUTURE-MAKING THROUGH DESIGN

We suggest that design, as a mode of inquiry, can be leveraged to envision alternative futures. Mazé (2016) views design as a future-making activity and claims that the future "will be occupied by built environments, infrastructures and things that we have designed." She argues that design as a practice holds the power to shape possible or preferred futures. Approaches such as speculative and critical design (Auger 2013; Dunne and Raby 2013), experiential futures (Candy and Kornet 2019)

and design fiction (Bleecker 2022) have engaged with futures more critically and sought to raise more questions than coming up with short-term solutions to current problems. They illustrate possible futures to shift our attention to potential implications of emerging technologies, and attempt to surface frictions as the starting point for debate. While these approaches differ in their methods, processes and outcomes, their aims are similar to one another. Hence, we group them as critical future-making approaches. These approaches have been employed in participatory contexts to open up debates about emerging technologies by making futures tangible (Michael 2012) especially in areas such as public engagement with science. Corporate foresight is an organizational competence that enables anticipating changes, evaluating possible futures, and orienting towards a desirable future. Corporate foresight is traditionally aimed at gaining or maintaining competitive advantage by being prepared for the future. Firms develop corporate foresight to navigate a VUCA environment: an environment that is volatile, uncertain, complex and ambiguous (Fergnani 2022, p. 821). Some management scholars argue that foresight is an organizational capability to systematically use processes to scan for trends and discontinuities that lead to change, envision multiple futures, evaluate their possible implications and triggering organizational responses (Fergnani 2022; Rohrbeck, Battistella and Huizingh 2015; Vecchiato 2015). While the primary function of corporate foresight is seen as improving firm performance, it could also help orient the organization towards grand challenges through careful engagement with multiple possible futures and more holistic understanding of potential outcomes of interventions. Foresight could help surfacing the linkages between trends and grand challenges (Ahlqvist and Kohl 2016, p. 2). However, while corporate foresight traditionally has employed elements of speculation, it often lacks criticality.

While critical future-making approaches are gaining more prominence, they remain at the margins of the design practice in technology organizations. Wong and Khovanskaya (2018) trace the use of speculative design in technology companies. They explain that concept videos often serve as speculative corporate practices, and a new wave of critical and speculative design is compatible with corporate speculation. They argue that speculative design could enable critically oriented researchers to engage with values and politics by equipping them with tactics to use familiar optics of innovation, speculation and long-term planning. However, the adoption of critical future-making approaches by technology organizations brings about new frictions. For example, a design fiction video titled "The Selfish Ledger", written by Nick Foster and David Murphy for internal use at Google garnered attention and critique when it was leaked outside the company. In the video, the narrator describes a goal-oriented ledger, which not only accumulates user data, and tracks behavior, but also nudges the users to reach a desired outcome. In the video there are several provocative questions such as: "what if we humans become custodians of data rather than owners" or "what are the implications of a ledger as an active agent who purposefully modifies our behavior?" Critical future-making approaches aim to

provoke debate, sometimes using discomfort, and invite asking questions about possible futures rather than providing answers. However, Salmon argues that when companies such as Google adopt critical and speculative design, it becomes a taunting display of power, rather than a provocation to imagine alternative futures (2018). On the other hand, Wong and Khovanksaya (2018) argue that critically oriented speculative design is highly compatible with conventional corporate speculation and re-centering criticality could help challenge dominant practices in technology design.

The future is often seen as a linear extension of the present that can be achieved solely with technoscientific advancements (Adam and Groves 2007). This techno-optimistic view of the future can blind us to the systemic and multi-faceted nature of GCs. Systemic transformation can only happen if we challenge dominant sociotechnical imaginaries and imagine alternative futures. Hence, in order to address GCs, organizations need to shift their attention to envisioning long-term futures and embrace criticality when doing so. We argue that the intersection of corporate foresight and design could provide a rich ground for fostering critical future-oriented practices to imagine futures differently.

METHODOLOGY

We investigated emerging future-oriented design practices and identified frictions that manifest during a time of organizational transition towards GCs. Our data collection was through an ethnographic study of design practices in a large multinational conglomerate company's Research and Development (R&D) Center in the USA. The first phase of data collection occurred from July to October 2019, during which Author 1 was physically present in the field. The second part of data collection lasted a total of 18 months, from October 2020 to March 2022. This second period was conducted fully remote due to the COVID-19 pandemic. The research question that guided our study was: "how are future-oriented design practices changing due to broader organizational shifts informed by grand challenges?"

The primary mode of data collection was participant observation. Author 1 conducted participant observation on a daily basis in the workspace. This involved observing day-to-day activities of designers and researchers in their organizational setting, attending weekly meetings in which team members report on the status of their work and discuss upcoming projects and project meetings of a cross-functional project. Participant observation is "a way to collect data in naturalistic settings by ethnographers who observe and/or take part in the common and uncommon activities of the people being studied" (Musante and DeWalt 2010). By being immersed in the naturalistic setting of the social groups that are being studied, the researcher takes part in the daily activities and routines of the people being studied.

Researchers' commitment to 'getting close' to the people being studied not only means having physical and social proximity, but also immersing in others' worlds grants fieldworker the access to the fluidity of others' lives, and enables an increased sensitivity to interaction and processes (Emerson, Fretz and Shaw 2011 p.3). draw on data collected through eleven qualitative interviews with key personnel in the organization. The interviews aimed at eliciting the thoughts of informants regarding the role of design in the organization, knowledge about current design practices and the overall research strategy in the organization. Informants were selected on the basis of their involvement in or familiarity with design practices, previous collaboration with the design team and their roles in the organization. We also draw on data we collected through public events such as seminars and forums the company hosted, and the company's publicly accessible publications such as journals and web pages.

FINDINGS

During our study, innovation and R&D strategy of the company was undergoing a transformation. The company had traditionally maintained a technology-driven strategy that informed its R&D strategy, but in 2014, the company decided to adopt "outside-in open innovation" in order to create value through market-driven research. Outside-in open innovation is a model of innovation that is based on collaboration with external stakeholders during the R&D, in which the company recognizes the value of external knowledge and makes use of it (Chesbrough 2014). There are several reasons for this transformation. First, by adopting outside-in innovation, the company aims to bridge the gap between technological innovation and commercial value. While some percentage of research is still being conducted in an inside-out way, in which researchers focus primarily on technological advancement and commercial applications later, the company is increasingly shifting towards starting from the challenges their customers face. An informant states that:

> "What we decided to do was to say, 'Look let's actually invert inside-out process and try to understand first, what the challenges are in the industries that we're interested in to understand what the key challenges are that our customers are facing and then start to co-create these solutions with the customers, so using their data, their expertise, but using mostly their challenges and perspectives of where they want to grow their business' … Then you want to make sure that the solution that you build that you develop actually satisfies the challenges, the requirements that we had identified with the customer, and once we've demonstrated that then we have a better, much better position to make the case, with our business units that this really can be commercially viable as a solution."

Secondly, the change in R&D strategy was a response to the increasing scale and complexity of the challenges the company seeks to address. In the opening keynote

of a virtual conference hosted by the company that was open to the public, the multinational's president lays out three main reasons for "collaborative open innovation": increasing complexity and severity of societal challenges, paradigm shift to human-centeredness, and the dissolving boundaries between production and consumption. He argues that we are going through a paradigm-shift towards human-centered technology which can only be achieved with co-creation within an ecosystem of partner companies.

Additionally, the threat being faced by the company is also a factor in the transformation of innovation strategy. This was partially due to the 'commoditization' of technologies that underpin the company's offerings. The technical superiority that drove the company's success was being matched by competitors that were offering similar products at lower prices as their once cutting-edge technologies became commodities. Thus, the company had to move away from being a product vendor, as it faced harsh competition, and towards becoming a long-term partner to customers in order to develop holistic solutions. Indeed, this orientation is promoted within the company through mottos that highlight unity and harmony, and exemplified with increasing emphasis on becoming a solution partner. The underlying premise is that the company, unlike some of its competitors, can provide comprehensive solutions that require a breadth of capabilities located across multiple functional units.

Brady, Davis and Gann (2005) state that organizations that attempt to transition into being solution providers "transform almost every aspect of the way they do business – from their business strategies and positions in the value stream, to their capabilities, organizations structures, cultures, and mindsets".

In short, these are the shifts that necessitate futures-thinking that critically engages with futures:

- Co-creation with customers
- Moving towards solution economy
- Addressing GCs

Here, we share our findings about how organizational shifts are influencing future-making practices in the design team, and identify frictions that arise due to these shifts. We find that GCs inform R&D strategies in the organization and shape the future visions they create and disseminate. Large-scale challenges such as decarbonization, urban mobility and manufacturing automation, call for changing R&D strategy to expand the scope of their offering to include comprehensive solutions to foster systems-level change rather than advancing discrete technologies. Our data points to the increasing prominence of futures-thinking and systems-thinking within the company, which reflects the increasing scale and complexity of challenges the company aims to address. We find that these shifts inform future-oriented practices of the designers and design researchers in the design team.

Expanding Corporate Foresight for Customer Engagement

Within the design team futures-thinking and foresight are increasingly being thought of as a core capacity. During the time of our study, foresight practices were already stabilized through yearly projects since 2016. The projects were broadly referred to as "Prospection", which consists of the foresight methodology, tools, and the resulting artifacts. The primary goals of "Prospection" are to assist business units with imagining future possibilities through a generative and open-ended discussion, and to facilitate future-oriented dialogue with customers. Over the years, the team has changed the tools and artifacts to adapt to changing business needs. The methodology is similar to the strategic foresight methodology that is popularized and advocated by Institute for the Future (IFTF). At the foundation of Prospection are "future signals." Future signals are subtle signs of change that hint at larger possible shifts. Signals are often thought of as the basis for foresight practice (Howard 2021), as practitioners build on these signals to identify larger patterns of change, make assumptions about possible futures and create visions and scenarios. Design team collects future signals using a template as a collective effort, and saves them to a database. Sources for these signals vary, such as news articles, blog posts, industry reports or first-hand experiences. After signals are collected, the principal social scientist begins identifying patterns and clustering these signals around topics such as governance, finance or mortality. Based on these clusters, they write short, evocative "future stories" about what that future might look like. The output of this process is usually a deck of 25-28 cards. Each card features an illustration of a scene from the future on the front, and a future story along with relevant trends on the back.

Prospection was conceived as a mode of inquiry for identifying paradigm shifts in industries and for imagining possible futures and their impact on business. There have been several projects in which the methodology and the cards were used to explore possible futures of a specific industry such as mobility, finance and manufacturing. In these projects, the design team collaborated with members from different organizational units or external stakeholders such as customers to envision future scenarios about industries that are relevant to them, speculate how these industries might change, identify future issues that might arise, and ideate on how to address them. This future-oriented approach is very different from traditional inside-out approach to methodology, as it focuses on hypothetical scenarios rather than technological capabilities. In other cases, the design team held workshops disseminate the methodology for internal stakeholders and/or train them in futures-thinking. These workshops primarily focused on teaching participants the basics of Prospection, such as collecting signs, creating future stories, and creating future scenarios, and ways to apply these methods in their own work, for example in customer engagements.

These engagements were successful in introducing stakeholders in alternative ways of thinking about the future. Prospection allowed asking "big questions", those that are pertinent to GCs such as aging population, or automation, which they may

not always have the time and space to do in their day-to-day work. Furthermore, Prospection also opens up space to engage with futures more critically, through provocative future stories that highlight widening inequality, climate cataclysm and weaponization of data.

Barriers to Adopting Futures-Thinking Across the Organization

We find that the design team experiences friction when introducing future-oriented design practices in collaboration with business units. Friction mainly arises due to the incompatibility of future-oriented design practices with the project timelines of business units. While cross-functional collaboration is encouraged by upper management as part of the innovation strategy, the barriers that hinder such collaboration are rarely addressed. To identify some of these barriers, we draw on a project led by one of the information technology (IT) focused business units. The initial project proposal, which was prepared by the business unit, highlighted that the company could be a valuable partner to the customer, as they could leverage diverse capabilities in multiple industries and develop solutions for their challenges across several domains. The business unit would play the role of orchestrator, forming work streams such as energy, maintenance or mobility and collaborate with R&D teams to propose solutions for each work stream. The design team was included in the project as they received funding from upper management to support customer engagement. Through this project, the BU aimed at cementing a long-term partnership with the customer. To the design team, building long-term partnership called for building a long-term vision, and aligning stakeholders and orienting actions around shared goals and aspirations. Therefore, this presented an exciting opportunity to showcase how design could shape customer engagement in the earlier stages by introducing futures-thinking capabilities. The design team initially focused on the energy work stream and proposed conducting trend analysis to understand driving forces of energy transitions, mapping future user expectations and experiences based on these trends and identifying opportunity spaces for developing solutions. However, as the project progressed it became apparent that proposed activities were not compatible with the established practices of the BU.

There are several reasons for the incompatibility that hindered applying future-oriented design practices in this project. Firstly, the clearly defined stages of customer engagement of business units did not allow for R&D, and more specifically the design team to seamlessly integrate into earlier stages. As R&D is seen as a cost-center to business units, hence it is not very common for business units to include R&D teams or researchers in the early stages of customer engagement, before securing the project. Secondly, the initial stages of customer engagement are seen as very delicate and fragile, and it is deemed risky to introduce new actors such as designers or design researchers to initial conversations. Finally, big visions are not deemed actionable enough and they are too abstract to make a concrete value proposition, especially for some business units that have short-term focus.

Furthermore, the future is inherently unknowable and uncertain. Thus, future-making is outside the comfort zone for business units who are more focused on solving immediate needs. It puts them in a vulnerable position as futures-thinking entails imagining alternative futures but also reflecting on present-day concerns, worries and weaknesses, which could present a risk in early-stage customer engagements.

Streamlining Future-Making: What Comes Next?

Finally, we describe how the design team is attempting to reduce friction in collaborative projects by codifying and streamlining their own practices, including future-oriented practices, and creating a shared methodology. The reasons for this are twofold. First, a methodology is seen as a way to make design practices more transparent and accessible to other teams and organizational units. As discussed in the previous examples, key stakeholders in business units are not very familiar with design and what design activities entail. Secondly, it is expected that a shared methodology would help both North American and European design teams strengthen their collaboration and integrate into each other's projects more seamlessly. In a large corporation with many design teams distributed across different organizational units, codifying design practices are seen as the solution to frictions they are facing when collaborating with different stakeholders, including business units and customers.

There is already a company-wide design-driven innovation methodology that was first introduced in 2016. This methodology, referred to in this paper as Innonext, aims to facilitate co-creation with customers, and promote social innovation for addressing GCs. This comprehensive methodology was created by codifying cumulative knowhow of designers and researchers. In an interview published on the company website, the core group behind Innonext explains that co-creation becomes more important as the challenges communities and companies face increase in complexity. While most stakeholders are familiar with the premise of the methodology, it is not always used effectively. The methodology has been used in hundreds of projects, but designers from different teams argue that it is not very actionable for business units as the vast number of tools and methods quickly become overwhelming. In 2020, the design team secured corporate funding to redesign Innonext in order to make it more actionable for business units. While the project was not completed during our data collection, we were able to gather in the initial phases of the project. The team collaborated with an external design agency to assist with developing a comprehensive framework, and collect practices under a streamlined methodology and an accompanying engagement model to collaborate with business units. The first step in the proposed methodology is "vision sharing". This entails analyzing the relevant domain, exploring business opportunities and discovering customer issues that the customer is facing. Sharing implies that both the company and the customer agree on a vision, and collaborate to achieve that vision.

However, the term "vision" takes on different meanings in the context of each organizational unit. A team member explains that for some business units, vision is limited to the scope of the specific project outcomes, while for R&D, and specifically the design team it refers to a high-level societal vision: "Vision" with a capital V. While both organizational units agree on starting with the vision, they differ in scope. This gap between different time frames and scopes for visions leads to increased friction when attempting to introduce future-oriented design practices to other organizational units.

Another friction that surfaced during the initial phases of the project was due to differing views on "codifying" design. Some team members argued that not all aspects of design could be codified, and some skills that are essential for design cannot be translated into step-by-step instructions. Furthermore, these frameworks, methodologies and tools aim to break down the "black-box" of design, and make it easy to understand and practice by non-designers. There are several assumptions that underpin the expectations from a shared methodology. A team member suggests that the main assumption is the belief that "if only we explained it enough, people would: (i) understand what we do, (ii) understand the value of design, (iii) understand how to use design…". She argues that no one asks data scientists to explain what they do, as it is assumed to be valuable, but there is a push to make design more accessible to non-designers. This is partly the result of the mass popularity of design thinking up until the 2010s. In line with the premise of design thinking that anybody can design as long as they have the right tools and follow the step-by-step process, these efforts to streamline design sometimes neglect the situated aspects of designing.

DISCUSSION

In this section, we discuss how frictions identified in the findings section are informing design team's practices and strategies. We argue that frictions enable new possibilities, as they provide opportunities to reflect on barriers and challenges.

Evolution of Future-Oriented Design Practices to Address Frictions

While the methodology of Prospection remained the same, the output changed over the years to respond to organizational needs. Here, we discuss how some of these changes are a result of the frictions identified in the previous section, but also how the team increasingly sought to incorporate criticality as a response to "frictionless futures" that are very prevalent. In 2019, the team added three new topics which are "climate cataclysm", "widening inequality", and "armed with data."

These themes were featured in what they termed as "dark cards," in which the teams call attention to societal issues exacerbated by emerging technologies. Although previous editions of Prospection cards also showcased potential implications, they were presented less explicitly and were even disguised by the cheerful and humorous illustrations on the cards. According to the social scientists in

the team, these illustrations were sometimes perceived as predictions by others in the organization instead of provocations to raise informed questions about the future. The 2020 version of Prospection was a "mural" depicting two possible futures of a city: a utopian and a dystopian future. Unlike previous editions, this mural was larger in scope as the team picked "smart city" as 2020's central theme. Instead of individual cards for categories, the city scale allowed showing how interconnected these trends are. In conversations with team members, it was brought up that the dystopian version does not look that different from today. This is an example of not only critically engaging with a possible future, but also reflecting on the present. The project description explains that tools such as Prospection help to facilitate a critical, systemic and ethical lens, and ask how to move towards a utopian future. This shift from individual cards to a mural signifies the increasing importance of recognizing interconnectedness of ecosystems to address GCs. Furthermore, by positioning two possible futures side by side, the team asks to critically examine what we mean by "smart" city.

For the 2021 edition, the topic was selected as "the New Normal", informed by the COVID-19 pandemic and the systemic issues it surfaced. While the collected signs covered the usual social, technological, environmental and political domains, they were mostly about the changes that were brought on by the pandemic. The pandemic not only influenced the content, but the engagement and dissemination model for the Prospection project. In previous years, Prospection as a method was mostly disseminated through in-person workshops for other organizational units or customers. The card deck, on the other hand, traveled across the organizational boundaries as a physical object. Shifting to remote work necessitated rethinking how to distribute Prospection for the New Normal.

This need was not only revealed by the pandemic, the integration of Prospection into existing organizational practices have already been challenging. Even within the design team, how to use Prospection was not always clear. In 2019, the design team had met to discuss a futures-thinking workshop for a business unit. While exchanging ideas about workshop activities, it was brought to surface that some team members had a different view of Prospection than others. For some, Prospection referred to the deck of cards and the cards would form the basis of activities. For others, Prospection referred to the method for inquiry about the future. Social scientists argued that the Prospection is highly context-dependent, and the value is in following the method and the process of creating future stories in a specific context. Yet, most people in the organization equated Prospection to the deck of cards, the outcome of the inquiry.

These two different views point to a bigger friction in different understandings of foresight and futures work: on one hand foresight is seen as a highly specialized technical skill possessed by the design team, and on the other hand it is considered as a broad-based capacity that is distributed across the organization. In the first view, the outcome of Prospection, as the artifact, travels across organizational boundaries

and carries "the futures-thinking knowledge" from the center to the periphery. The principal researcher argues that this expectation from Prospection is the legacy of the more traditional organizational structure, in which knowledge flows from R&D to business units. The latter view positions Prospection as a method for open-ended inquiry into possible futures, and a way to foster future-making as a capacity distributed across the organization. The challenges posed for remote work, and the friction between two differing views informed the 2021 edition of Prospection, which is titled the New Normal.

For this edition, the intended audience was selected as the salespeople in business units, in order to help them foster a future-oriented dialogue with their customers. Building dialogue has been advocated as the first step for co-creation with the company's customers. Since co-creation is considered as the leverage for transitioning to solution economy, the design team has been advocating for building effective and generative dialogue that opens up possibilities for co-creation rather than foreclosing possibilities by focusing on solutions. The format was expanded from the deck of cards to include foresight exercises and an additional workbook to help ground futures-thinking in day-to-day practices. While the process for creating individual future stories remained the same, each card included questions for the reader to engage with the content incorporating their own perspectives. The workbook section contained exercises to help the reader to reflect on their own relation to the future, and explore their customers' potential worries and hopes about the future.

Challenges and Opportunities for Cross-Functional Collaboration

While the company is aiming to foster social innovation to address GCs, techno-solutionism and short-termism is very prevalent, similar to the society at large (Byrum and Benjamin 2022). The bias towards short-term results and technological fixes to social problems were highlighted in several engagements with business units, such as the project described in the Findings section. While the design team did not reach their intended goal of supporting the business unit with customer engagement, these frictions provided a learning opportunity for them. These recent engagements with different business units highlighted the barriers and opportunities for implementing futures-oriented design practices for intra-organizational collaboration. First of all, the design team, in collaboration with their counterparts in Europe, proposed a new organizational model. Through this new model, they propose to shift towards collaborating with business units in specific industries such as rail and energy to build long-term visions. The managers of both teams argue that such business units are better suited for a joint inquiry into long-term futures, as they are focused on infrastructure-level transformation, thus they naturally operate in a longer time frame. Prior engagements with these business units in the recent years had promising outcomes. For example, in 2020, both design teams in North America and Europe were tasked with supporting a coalition of business units in several domains

such as energy and rail to prepare for a customer engagement. The prospective customer was a public body that oversees rail transport and operates rail infrastructure in a European country. The design teams focused on creating a shared vision for the future of rail. This vision helped not only to show the desired future that could be achieved through a long-term partnership, but also to align internal stakeholders around a shared goal and a narrative. In this case, the trust that has already been established between business units and design teams played an instrumental role in the project's success. Stakeholders from the business units were familiar with design teams capabilities, therefore, they were open to having them lead the future-oriented practices.

CONCLUSION

In this paper we explored the evolution in the company's innovation and R&D strategy as they increasingly orient towards solving GCs, we have uncovered a series of shifts that inform future-oriented design practices. This discussion has delved into the findings, identified frictions, and highlighted the changing practices within the design team, shedding light on the intricate relationship between organizational shifts and future-making practices. The importance of futures-thinking becomes increasingly evident in this context. As the company seeks to co-create solutions with its customers and transition towards a solution economy, and addressing grand challenges (GCs) the importance of imagining alternative futures becomes paramount. The future visions not only help orient innovation strategies, but also align stakeholders around shared goals for systemic transformation, and help reflect on the challenges already faced in the present. We found that the intersection of design and corporate foresight provides a rich ground for introducing critical future-making into the broader organization, to foster generative and open-ended discussion about possible futures. However, introducing future-oriented design practices into the broader organization is not without its challenges. Frictions emerge when attempting to integrate these practices in collaborations with other organizational units such as business units.. Nevertheless, these frictions serve as catalysts for furthering future-oriented design practices within the design team. In conclusion, this exploration of the company's journey through organizational transformation and future-making practices demonstrates the intricate interplay between strategy, innovation, and foresight. The challenges and frictions encountered provide valuable insights into the evolving landscape of corporate innovation and the pivotal role of futures-thinking in navigating complex, interconnected and large-scale challenges. As the company continues its transformation towards a more solution-oriented approach, the design team's ability to facilitate open-ended dialogue and envision alternative futures remains critical in addressing grand challenges and co-creating value with customers and partners.

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Frictions in the Future of Work

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The concept of the "future of work", though widely-referenced in mainstream media and policy discourse, remains persistently ambiguous, making it ripe for ethnographic intervention. Contrary to the techno-determinism of industry research and the limited focus of some public policy, I trace the social complexities and frictions of the future of work through the example of worker surveillance in the retail industry. I begin by reviewing the history of retail worker surveillance and showing how the social dimensions of worker surveillance have evolved alongside labor processes. Then, I explore a recently-proposed US policy that aims to combat worker surveillance, and I explore how that proposal might look different if it were informed by ethnography. I end by considering speculative methods and design justice frameworks as potential avenues through which applied ethnographers might wrestle with these social complexities and contribute to collectively redesigning futures of work.

Keywords: Anthropology/Sociology/Cultural Studies; Power & Inequality; Retail/Ecommerce; Work & Labor

INTRODUCTION

"The future of work" has gained increasing prevalence in recent years and is commonly referenced in mainstream media. Key moments in near history–such as the many white-collar workers who clocked-in from home during the COVID-19 pandemic or the release of ChatGPT– have amplified this discourse. While the "future of work" is, as some suggest, a "floating signifier" that lacks precise definition (Schlogl et al. 2021), at the core of these debates are concerns about the relationship between work and technology. The socially significant yet stubbornly ambiguous nature of this topic makes it ripe for intervention from ethnographers and EPIC community members.

A review of contemporary literature by NGOs, think tanks, and industry consultants finds that much writing on "the future of work" focuses on technology as a key driver of changes in work. This techno-deterministic view treats history as linear and the future as the inevitable result of technological advancements instead of something that shapes and is shaped by social relations. On the topic of solutions, this literature takes a similarly narrow view, often placing the onus on individual workers to upskill (Schlogl et al. 2021) and ignoring the agency of workers to adapt to or resist evolving conditions of work (Carmody 2022; Moellenberg et al. 2019). Other critics note that an obsession with the future risks ignoring the need to transform the present (Tucker 2023). A social scientific lens into the "future of work" would center workplace *relations*, focusing on the complex dynamics between various workplace actors, organizations, tools and technologies. In doing so, the "future of work" becomes open to multiple possibilities.

The future of work is a familiar discourse, even if we don't always define what we're talking about. But as a review of the literature suggests, techno-deterministic views of the future of work have come to dominate. They have become perhaps too easy, however, too fluid, too commonsensical. We can introduce **friction** into the future of work discourse by placing workplace relations at the center of the conversation.

In this paper, I apply this lens to the phenomenon of worker surveillance in the clothing retail industry. A recent editorial in the *Journal of Management* points to digital management and surveillance as one of the main challenges in the future of work: the authors say that the increasing reliance on algorithms to organize work, assign schedules, and review performance may lead to "dysfunction" and a sense of "injustice" in organizations (Malhotra 2021). In addition, digital worker surveillance has been characterized by a rapid increase in the amount of data collected about workers. As these tools and practices evolve, there will be ongoing opportunities for ethnographers and members of the EPIC community to understand how these shifts impact the experiences, needs, and pain points of people in these digitally-mediated workplaces.

My thinking around the "future of work" as well as my approach to my current field of user experience research has been informed by my past academic research. For my dissertation and eventual book project (Van Oort 2023; Van Oort 2019a; Van Oort 2019b), I conducted ethnography between 2014 and 2018 on the fast-fashion clothing retail industry to understand how the sector was using technology to manage retailer workers in the United States in new ways. As a global industry that was on the cutting edge of using new technologies in the retail sector, fast fashion presents a useful springboard for exploring worker surveillance as well as for thinking through social relations of the "future of work."

In what follows, I begin by reviewing the history of retail worker surveillance and tracing how the social dimensions of worker surveillance have evolved alongside labor processes. Then, I engage with a recently-proposed policy in the United States that would combat worker surveillance; I show how the proposal remains tethered to a simplistic focus on individual actors and consider how it might look different if it were informed by ethnography. I end by considering speculative methods and design justice frameworks as potential avenues through which ethnographers and EPIC community members might wrestle with these social complexities in the field of product design to build power with users, reduce harm, and contribute to collectively redesigning futures of work.

Ultimately, much contemporary 'future of work' discourse simplifies the complex landscape of technology and work/labor relations. Retail worker surveillance helps us understand the future of work from a different vantage, by challenging techno-deterministic and individualistic ways of thinking about the future of work. Leveraging the frictions that emerge from ethnography will help all stakeholders– from industry, academia, policy, and perhaps most importantly, those on the shop

floor or sales floor– wrestle with the tough questions of how to create futures that benefit everyone.

A BRIEF HISTORY OF RETAIL WORKER SURVEILLANCE[1]

Understanding how the social dynamics and tools of worker surveillance have transformed alongside the labor process requires us to first look backward to try to understand how digital worker surveillance in twenty-first century fast fashion retail compares to earlier iterations. In early twentieth-century department store contexts, workers were trained to engage in skilled selling, and managers expected deep engagement with customers. Historian Susan Porter Benson describes department store sales-floor discipline as too often "all stick and no carrot." Her book *Counter Cultures: Saleswomen, Managers, and Customers in American Department Stores, 1890–1940* includes archival photos from women's magazines depicting salesgirls congregating in small groups, sharing gossip or grievances while a male figure—presumably either "store detective, spying floor manager, [or] undercover agent"—lingers ominously in the background. These managers operated without the assistance of technology; yet even simple time clocks were viewed as a threat to worker autonomy. Opponents warned, "[the time clock] was an invention of the devil to check prisoners into their cells at night, and not to check honorable boys and girls into their jobs" (Porter-Benson 1988, 232). In this era, surveillance was direct– individual bosses or detectives watching individual workers– but as the preceding quote indicates, these dynamics were situated in broader social structures of power and inequality.

The shift from department stores to the proliferation of branded apparel retail chains (such as the Gap, Abercrombie & Fitch, and The Limited) in the later twentieth century led to deskilled affective labor. More important than knowing the product was providing a positive and formulaic interaction to customers. Sociologist Arlie Hochschild coined the term "emotional labor" in this era to capture how corporations make money from the management of human feeling: workers sold not just a product, but a service and an experience (Hoschild 1983). Later, sociologist Ashely Mears applied the term "aesthetic labor" to how workers cultivate a specific look and way of being; they indeed embodied the brand (Mears 2014). Workers looked, sounded, and acted as if they belonged.

In this era, as the labor process evolved, the mechanisms of surveillance became more complex, involving third parties to not only prevent crime but also to rate employee performance. Here, secret shoppers, hired through a contracted agency, appeared unannounced as undercover customers. After each shopping trip, secret shoppers produced quantitative evaluations based on the service they received and what they observed of employees, thus creating a threat of surveillance without constant supervision. Vicky Osterweil writes, "Mystery shoppers are miniature thought police, affective pinkertons, mercenary management to whom real management outsources the legwork of everyday psychic control" (Osterweil 2012).

Mystery shoppers ensured standardization of service, affect, and appearance of branded retail workers.

In recent years, however, big data, digital surveillance, and fast fashion have altered the terms of retail labor (Chaudhuri 2018; Uberoi 2017). Alongside just-in-time clothing manufacturing, the industry has embraced just-in-time labor management practices. That is, fast fashion clothing retailers use automated scheduling systems to attempt to predict precisely how many–or more importantly, how few– employees are needed at any given moment. With the help of these tools, many retailers have transitioned from a significant portion of full-time staff to a workforce that is primarily part-time and lacks benefits (Kaplan 2015). For employees, this has led to deep unpredictability in how many hours they're assigned or what their paychecks will amount to. As customer service takes a back seat to the work of maintaining a non-stop flow of goods, and as the labor force becomes increasingly part-time with unpredictable schedules, the utility of the "affective pinkertons" in the form of mystery shoppers wanes. Worker behavior, like everything else in the store, becomes more efficiently tracked and managed by digital technology.

The National Retail Federation's 2020 National Retail Security Survey, which collected information from sixty-nine retailers, reflects these shifts. "Respondents say their organizations are devoting more resources to fight shrink [an industry term for loss of inventory] in the coming year, with a majority of those enhancements coming in technology investments." One chart tracks "biggest year-over-year movement" in retail security: mystery shoppers, secured display fixtures, and static observation booths or mirrors are waning. Tactics on the upswing include live customer-visible CCTV, point-of-sale exception-based interfaces (which tracks cashier transactions and highlights potential "exceptions" to identify high-risk stores and high-risk cashiers), and internet protocol analytics. In other words, analog surveillance is out. Digital surveillance is in.

In her 1989 book *In the Age of the Smart Machine: The Future of Work and Power*, Shoshana Zuboff writes that technology has the potential to both "automate" work (by replacing workers) and "informate" work (by empowering workers with new knowledge). In the twenty-first century, fast fashion retail managers have at their disposal more worker data than ever before. The growth of software used to automate employee schedules not only creates new norms of short shifts and fluctuating employee calendars, but also encourages employers to engage in other forms of automated management. The rise of just-in-time labor and automated scheduling has gone hand-in-hand with the proliferation of other forms of digital worker management and monitoring. With many more employees clocking in and out at unpredictable times, managers lean on digital technologies to keep tabs on their staff. Biometric fingerprinting purports to provide objective time keeping for today's "modern" (i.e., flexible) workforce by preventing time theft and "buddy punching" (referring to employees who might clock in or out for a coworker who

has not yet arrived or has already left in attempts to get paid for time not worked). Software that tracks and aggregates cash register transactions encourages employers to quickly pinpoint "exceptions" within a large pool of cashiers, attempting to prevent "sweethearting" (referring to employees providing discounts to friends or family) and other fraudulent or erroneous behavior.

With socio-economic shifts–including the emergence of digital technologies but also evolving forms of production and labor processes–worker management and monitoring has become increasingly complex. If some of the foundational frictions between employers and employees remain, the amount of information, the kinds of tools, and the number of actors involved have ballooned. As I'll show in the next section, policy discourse has yet to catch up with these complexities of contemporary surveillance, and ethnography– with its attention to collectivities, collaborations, and networks– offers a more nuanced perspective.

CONTEMPORARY FRICTIONS[2]

In the previous section, I argued that understanding the "future of work" requires taking seriously frictions that have evolved throughout history. But if the future of work has a history, it also has a present. In this section, I consider how recent legislation around worker surveillance sidesteps the social complexities of how contemporary digital worker surveillance operates. This legislation provides a prime example of how contemporary "future of work" discourse risks relying too heavily on simplistic tropes that might catch readers' attention while flattening social realities. Bringing in ethnographic evidence paints a more complex picture of how surveillance operates and presents distinct opportunities.

Legislation proposed in early February 2023 by United States Senators Bob Casey (D-PA), Cory Booker (D-NJ) and Brian Schatz (D-HI) aims to put the federal brakes on worker surveillance. The one-pager for this proposed legislation, called the "Stop Spying Bosses Act" says, "data collection, workplace surveillance, and automated decision systems imperil workers' autonomy, dignity, and, in some cases, their health and safety." This bill is significant given that few restrictions currently exist in the US to limit worker monitoring, even as surveillance technology capabilities are increasing at unprecedented rates. The Stop Spying Bosses Act would:

- "require any employer collecting data on employees or applicants to disclose such information in a timely and public manner;
- prohibit employers from collecting sensitive data on individuals (i.e., off-duty data collection, data collection that interferes with organizing, etc.);
- create rules around the usage of automated decision systems to empower workers in employment decisions; and

- establish the Privacy and Technology Division at the Department of Labor to enforce and regulate workplace surveillance as novel technologies evolve and grow."

While the Stop Spying Bosses Act is a good start, based on my ethnographic research, this bill may not go far enough in adequately addressing the social complexities of worker surveillance. First, by focusing squarely on how employers surveil and monitor employees, this proposed legislation implies a linear, one-way model of surveillance in which one party surveils another. But this is not how modern surveillance systems work. In reality, they are much more complicated, and surveillance of one group of people can directly and indirectly impact others. Karen Levy and Solon Barocas call this phenomenon "refractive surveillance" (2018). They note that in the retail sector, for instance, technologies built to track customer movements throughout stores required new ways to distinguish customers from employees, thus leading to more digital scrutiny of workers' movements as well. In my own fieldwork, I observed this refractive surveillance in other ways. For example, the data collected about sales and customer traffic was incorporated in automated scheduling systems to create workers' weekly schedules. In order to fully understand and take on worker surveillance, one would need to account for not only how managers monitor workers, but also how retailers are collecting data about other groups (including but not limited to customers) and how that information might impact worker management and monitoring.

Second, by framing the problem as one of bosses spying on employees, the Stop Spying Bosses Act avoids addressing the vast array of third-party tools and platforms that retailers use to manage and monitor their employees. When I worked undercover as a fast fashion retail employee, I regularly interacted with third-party scheduling software, biometric time clocks, surveillance cameras, and cashier tracking systems. And these were just the ones I was aware of. As part of my research, I also attended a retail loss prevention conference where tech companies that made these kinds of tools attempted to promote and sell them to retailers. When I asked one representative of a facial recognition software company about the ethical implications of their product, he told me his company simply makes the products, but they can't control what retailers do with it. If, in this case, the company that made the technology avoids responsibility by saying their users– retailers– are the ones to blame for any ethical breaches, that logic can go both ways: even if legislation limits the data retailers directly collect about employees, retailers may attempt to sidestep these regulations with the help of third-party software. Efforts to control worker surveillance thus need to take stock of the full suite of products and tactics companies utilize to surveil their staff.

Third, the Stop Spying Bosses Act does not address the many ways that worker data can be shared beyond one's employer. For example, worker data can potentially be shared across companies or with law enforcement, ICE, and other state and federal agencies. At the aforementioned loss prevention conference I attended, one

company advertised a database that retailers could join to share information about front-line employees accused of theft or other fraudulent behavior. Retailers at the conference were also encouraged to mingle with law enforcement representatives from around the country at the conference "fusion center." As critical ethnographers have shown, such data-sharing and relationship-building can disproportionately impact marginalized workers by further surveilling already over-policed communities and potentially increasing points of contact with law enforcement (Benjamin 2016; Brayne 2017; Eubanks 2016).

Based on my own ethnographic research, the Stop Spying Bosses Bill– or any legislation or organizations attempting to address worker surveillance– needs to consider the many ways companies collect information about employees, customers, or other members of the public and consider how data collection about one party can impact another. This may require more expansive regulations of company data practices, such as supporting fair scheduling (as New York and Los Angeles have done). Second, any proposed legislation or action needs to account for and address employee data collected by third-party monitoring and surveillance technology companies. Third, limits on data sharing between employers and law enforcement, ICE, or other government agencies could protect workers against some negative consequences of worker data collection in other areas of their lives. At a minimum, employers should be required to disclose when employee data may be shared with other companies or institutions.

As I hope this engagement with the Stop Spying Bosses Acts indicates, researchers in industry and the EPIC community can use tools at our disposal to complicate and intervene in applied industry and policy discourse in ways that more accurately reflect current realities. But policy is just one path for creating change. In the next section, I look to speculative methods and design justice to support another path that might be closer to many EPIC community members' day-to-day work: product design.

REFASHIONING FUTURES OF WORK THROUGH SPECULATIVE METHODS AND DESIGN JUSTICE

As Todd Carmody writes in "Anti-Work Theory and Jobs Not to Be Done," "ethnography, of course, is never just a means to an end. Being in the field is also a chance to rethink our preliminary assumptions and theoretical claims" (2022). In the previous sections, ethnographic research challenged techno-deterministic and individualistic ways of thinking about worker surveillance. Still, additional methodologies can be helpful for ethnographers and members of the EPIC community who want to translate insights into product design opportunities to collectively redesign the future. Speculative methods and design justice are two such techniques.

Speculative methods attempt to envision worlds that don't yet exist; in product spaces, speculative methods challenge practitioners to "design with users" to fully meet complex needs and anticipate future ones. In their article, "Leveraging Speculative Design to Reimagine Product Roadmaps," Attari et al. point out user-centered design tends to focus on individual users, "and other actors, such as neighbors and visitors, are mostly neglected." They go on to say that user-centered design tends to focus on users' interactions with one *specific product*. In contrast, speculative methods could encourage ethnographers to hold an expansive view of who or what constitutes a research subject. As I discussed above, to understand the complexities of contemporary surveillance, researchers need to attend to an array of actors– including front-line workers, managers, consumers, other companies, and state institutions– as well as the ecosystem of tools and technologies within which these actors and organizations operate. Speculative design thus offers a useful framework for beginning to address these social complexities.

Beyond who or what is studied, speculative methods and design research share distinct points of view on how to approach solutioning. Attari et al. argue for a shift from "human-centered design" to "designing with users." They write, the "speculative design approach has a 'with user' mindset to design for the 'what if' state of the world." (2021, 194). In their book *Design Justice*, Sasha Costanza-Chock suggests that people should "bring design skills to community-defined projects" (Costanza-Chock, 2020) to shift the landscape of design to not simply *include* but in fact be *led by* directly-impacted communities. In the field of labor, there is a long tradition of organizing front-line workers to research, map, and identify opportunities for creating change in their own workplaces (Haider and Mohandesi 2013). Employing a combination of speculative methods and design justice in the form of a *workers' design inquiry* could shift the conversations around the future of work by potentially empowering front-line employees with ethnographic skills to generate research questions or even conduct their own user research. This approach could help bring to life surveillance scholar Arun Kundnani's remark at the 2018 Subverting Surveillance Conference that "the antagonism of surveillance is not privacy, but the making of communities in struggle."

At the same time, commentators on debates around AI also caution against placing too much emphasis on the 'what if.' In a recent interview with the Guardian, former Google employee and current president of Signal (the encrypted messaging service), Meredith Whittaker says, some "warnings [about AI]... project everything into the far future so they leave the status quo untouched. And if the status quo is untouched you're going to see these companies and their systems further entrench their dominance such that it becomes impossible to regulate" (Tucker 2023). In other words, the ethnographers of the "future of work" must be careful not to let a focus on the future block what could be (re)designed in the present.

With that caution in mind, combining the rigor of ethnographic research with the frameworks of speculative methods and design justice could combat the tendency to

narrate the future of work from individualistic and techno-deterministic perspectives by sitting with the frictions in inherent in our social worlds, and especially in our working worlds– past, present, and future. Only then can we hope to collectively redesign the futures of work. That, I'd argue, is a future to look forward to.

ABOUT THE AUTHOR

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NOTES

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1. Portions of this section were adapted from Van Oort (2023b).

2. Portions of this section were adapted from Van Oort (2023a).

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Technology in High Stakes Moments and Complex Contexts

Maintaining agency over and through technology—and enabling all users to do the same—is increasingly urgent as ever more of our social, emotional, and economic lives is experienced with that same technology.

Discussant: Lee Cesafsky

Sending out an SOS

Signals from Conflict-Affected Audiences in the Digital Communication Landscape

CAPRI BURRELL, *Meta*
SARA PARVANEZADEH ESFAHANI, *Meta*

Crisis events can profoundly alter a person's relationship with technology that require product solutions to meet user challenges during these periods of upheaval. We used digital ethnography in two recent events, the internet shutdown and blocking of WhatsApp during the protests in Iran (2022) and the Kahramanmaras earthquake in Turkey (2023) to examine real-time community organization behaviors in technologically mediated settings in the context of conflict and disruption. In the case of the internet shutdown in Iran, we documented workarounds when access is blocked and when our app does not do the things people need it to do. In the case of the earthquake in Turkey, we learned how people share photos/videos and status updates for information sharing and raising awareness.

BACKGROUND

Phones become a lifeline for people during periods of social upheaval and humanitarian crisis. People engage with online communication platforms for different purposes with different outcomes. In turn, these platforms "create different architectures for participation" (Wesch 2012, 101). Architecture can be defined by barriers like device and data access and affordability, internet blocking and censorship, digital literacy, feature awareness, and product limitations. These barriers are illuminated and exacerbated by crisis situations. We set out to examine these barriers so they might be minimized in future times of disruption.

In H2 2022 and H1 2023 we were part of two critical conversations inside WhatsApp about better serving users in times of upheaval and crisis. This is a novel area of understanding for our organization that led to significant product outcomes and ways of working. We believe that as applied social science researchers supporting an app with approx 2.5B monthly active users, it is our obligation to tirelessly advocate for research that meaningfully challenges adversity and marginalization. It is our hope that our work inspires other researchers and sparks conversation among the research community.

CASE STUDIES

Context

We sought to facilitate our users' access using the insights of digital ethnography in two recent events, the internet shutdown and blocking of WhatsApp during the

protests in Iran (2022) and the Kahramanmaras earthquake in Turkey (2023). We examined real-time community organization behaviors in technologically mediated settings. Because interactions that usually take place in relatively stable and bounded socio-technical environments are different compared to more "volatile environments" (Airoldi 2018 662), we focused on online behavior in the context of conflict and disruption to generate an understanding of needs in the face of instability. We documented how people share information, inspiration, and resources in these circumstances. Use cases ranged from raising awareness beyond borders, coordinating rescue and medical response, and workarounds for when app access is blocked, or functionality is compromised. Analysis of first-hand accounts across internal and external online forums gave us a contextual perspective to develop use cases and jobs to be done that helped inform product recommendations that serve users in times of crisis.

Method Selection

Digital ethnography is an established method to examine social change. It provides the opportunity for social scientists and applied user experience researchers to access vulnerable communities during times of emergency (Masullo and Coppola 2023). Each case study will use digital ethnography to understand digital communication friction in environments of upheaval and rapid change, when face-to-face research methods are not practical or feasible. We took a blended approach of online observation across external public forums (eg Twitter, Instagram, Facebook Groups), internal Meta employee groups, literature reviews of syndicated online sources, and direct insight collection through digital diaries and questionnaires. We demonstrate that where engagement is purely digital, social and geographic barriers to participation or observation are minimized, making hard-to-reach groups and perspectives more accessible (eg. Morrison et al. 2015). We will also discuss how this method lent itself to human-driven storytelling which we used to engender deep stakeholder empathy and compassion that can lead to meaningful product strategy and even organizational change.

Socio-Political Situation & Blocking in Iran

Context

In mid-September 2022 in Iran a 22-year-old woman, Mahsa Amini, was arrested by the morality police for allegedly not wearing hijab in accordance with regime standards. She went into a coma, and a few days later she died in hospital. Eyewitnesses reported that she was beaten while in custody. Following her killing, protesters took to the streets in Iran (Chappel and Hernandez 2022). The authorities immediately shut down the internet and blocked WhatsApp on Sep 20th, 2022. A few weeks later, they restored internet access, but WhatsApp remained blocked.

To work around the block, people started using commercial Virtual Private Networks (VPNs). However, using VPNs was not a sustainable solution for a number of reasons; the regime blocked known VPNs, they were expensive to buy, and they had low reliability, i.e., some work only on wifi, some only on mobile data. It took excruciating effort to maintain reliable access to WhatsApp, but people persisted because they needed private communication.

WhatsApp is a part of daily life in Iran, because both calls and messages are end-to-end-encrypted (E2EE) and free. People only need an internet connection to access free, private communication. Iranians highly value secure and private communication to avoid regime data sniffing (i.e., monitoring and capturing data in a network). Availability of a secure, private platform during protests was critical because people needed to share videos and photos of brutal actions carried out by the regime toward its own citizens. Photo/video evidence helped raise global awareness and create pressure beyond Iranian borders. Unfortunately after WhatsApp was blocked, people were forced to move to less secure communication platforms such as Telegram and fake versions of WhatsApp and other communication apps that lack default E2EE. This is particularly problematic given the regime's track record of surveilling its citizen's online public activity and alleged human rights abuses against those they deem digital dissidents (Biddle and Hussain 2022).

Our Goals and Methods

We set out to understand the scope of the problem and the risks our users in Iran faced as a result of blocking. However, we dealt with two sets of limitations to capture users' experience. First, because of political and financial sanctions we were not allowed to formally conduct research in Iran, mostly because we could not compensate the participants for their contribution. Second and more importantly, the situation needed immediate attention from the product team. Protesters were killed every day on the streets in Iran and they could not share the footage with

Western media to raise awareness and get support from foreign governments to stop regime brutality. We moved fast with WhatsApp leadership to serve these emerging user needs and pain points caused in people's lives.

To overcome these limitations, we tapped out a community of Iranian-born colleagues who have immediate families and close friends in Iran, including this manuscript's second author. We circulated an intake form to collect observations and pain points they heard about or encountered. Almost all of these colleagues used WhatsApp as the primary platform to connect with family in Iran. We also followed Iranian creators who actively posted videos, photos, and screenshots of their communications with people on the streets. We recorded these observations and synthesized them to uncover patterns and develop themes that we presented as a case study to leadership with actionable recommendations to address the gaps in our

product experience. This collective effort led to building an in-app proxy, a secure way to connect to WhatsApp even when the internet connection is blocked or disrupted.

What Worked Well

Our access to a community of trusted individuals who both had knowledge of product infrastructure and fully understood the magnitude of the block's impact made digital ethnography feasible. We collected participants' first-hand experience through screenshots of their app usage. This was critical to our understanding of the situation, users' underserved needs, and gaps in our product. There were a few benefits to leveraging our internal community. First, our ability to quickly share information and ask for input from these subject matter experts. Second, as our colleagues experienced the impact of blocking firsthand (many were fully cut from communicating with their family and friends), people were intrinsically motivated to help the working team collect as much information as possible.

Areas to Improve

As mentioned earlier, we could not hire a vendor or directly reach out to people living in Iran through formal channels due to political and financial sanctions. At Meta, research has a well-developed infrastructure with clear steps. This was a novel situation that required us to get creative to collect firsthand experience quickly. This experience resulted in developing a novel course of action despite limitations beyond our control. One potential improvement is establishing a protocol for research in similar situations in future that allows more clarity and faster action for researchers.

Earthquake and Aftermath in Turkey

> "Whoever sees this WhatsApp status, please come and help. Please everyone come and rescue us now" Boran Kubat broadcasting to his WhatsApp network from under rubble in which he, his mother & uncle were trapped. (Economic Times 2023)

Context

In February 2023, Turkey experienced the 5th deadliest natural disaster in modern history, a series of earthquakes impacting an area of about 140,000 sq mi (350,000 km2), or an area about the size of Germany. An estimated 14 million people, 16% of Turkey's population, were affected. Development experts from the United Nations estimate that about 1.5 million people were left homeless. The confirmed loss of human life was just under 60,000 people across Turkey and Syria (Wikipedia 2023).

The scale of the loss and destruction was made worse by logistical challenges responders faced in the first hours and days after the earthquake. Relief efforts were

undermined by several factors, including loss of communication infrastructure. It's estimated that in the Kahramanmaras Province (the epicenter of the earthquakes), internet traffic fell by 94% following the second earthquake (Data Center Dynamics 2023).

Turkey is a key market for WhatsApp based on the number of daily and monthly active users. During this humanitarian crisis, it became a critical lifeline as people relied on it to share 1:1, group, and community messaging, video and voice calls. Notably, there were reports that users found ways to broadcast their location and requests for help via the Status feature when they found themselves buried in collapsed buildings (Economic Times 2023) – a veritable SOS signal. WhatsApp's role in the earthquake relief efforts became even more critical as the Turkish

government reportedly throttled and blocked Twitter (Netblocks 2023) for a period of time reportedly due to a spike in tweets critical of the government's handling of the crisis. WhatsApp's default End to End Encrypted (E2EE) messaging and Voice over Internet Protocol (VoIP) provided users a safe and private forum to share unfettered information without risk of government interference.

Our Goals and Methods

On February 7th, conversations began to surface in internal WhatsApp chat groups about the earthquake and our company's response efforts. Almost as quickly as those conversations began, a cross-functional team met to develop a plan, including leads across marketing, product, policy, social impact, legal, research, design, and content. To understand and address gaps in our product experience, we spent a period of weeks to focus on problem identification and definition, capabilities needed, and developing a common vision and goals. In parallel, research conducted systematic synthesis of the information and feedback shared in the internal groups coupled with the insights gathered from a literature review and digital ethnography. There is conical research that identifies the role of social platforms in disaster recovery across the following dimensions: 1) donations and financial support 2) solidarity and social cohesion, 3) post-disaster reconstruction and infrastructure services, 4) socio-economic and physical wellbeing, 5) information support, 6) mental health and emotional support and 7) business and economic activities (Ogie et al. 2022). We agreed that WhatsApp has the most natural product-market fit with information support-specific use cases, which allowed us to develop a set of themes that encapsulate core information-seeking needs in times of crisis.

People in times of crisis need:

- To both share and access real-time information
- Highly relevant information
- Trusted information

These core needs became governing principles to guide user experience decisions for how we might use in-app communication channels during crisis response:

- Timely
- Relevant
- Authoritative

In addition to need gathering, we learned that information support in high-risk situations can be particularly volatile and fraught with friction. The desire to access trusted information can be intentionally exploited by bad actors, including accelerated spread of misinformation, particularly over public and often unencrypted platforms, as described in the previous case study. These factors hinder access to authoritative, locally relevant, and timely information during a crisis, with life-or-death consequences. The advantage WhatsApp groups and communities provide is that they are largely not discoverable through a search in the app or a search engine, but rather require a direct invite from an existing member. This can engender higher degrees of cohesion and trust in these groups, factors that we observed were critical during the earthquake.

These foundational insights helped inform our nascent WhatsApp-to-user communication strategy and demonstrated the role our platform can provide to empower private and secure community engagement during times of crisis.

What Worked Well

Project success was bolstered by a number of factors. First, it benefited from having the right people involved. This included market and subject-matter experts, key decision makers, and the insights team to ensure a human-centered approach. Second, while the project was reactionary (e.g. not part of a team roadmap), the team was able to pivot quickly to respond to the business and user needs. Lastly, there was immediate definition of principles and goals rooted in user needs, leading to clear decision-making.

Employing digital ethnographic approaches across internal and external platforms enabled us to react quickly. By gathering real-time understanding amid rapid situational change, "the remarkable growth in the diversity and richness of time-critical information that is generated on social media sites during disasters provides a great opportunity to harness large-scale spatio-temporal data of enormous value" (Ogie et al. 2022). Electing not to recruit users to participate in research activities during the earthquake aftermath was also an ethical choice. Given the scale of impact and emotional toll disasters take on the surviving populace, we wanted to minimize adding any undue duress or inadvertently triggering participants for the sake of collecting study insights. The insights gathered from indirect observation methods were sufficient to move our thinking forward, knowing we have the option to conduct more rigorous and direct follow-up research once the crisis has subsided.

Areas to Improve

Because the project was a response to an unforeseen, external event, we did not have a standard operating procedure or playbook to follow. Further, due to the high-risk and volatile nature of that event, the threshold for risk mitigation by delivering high user value was beyond what we could respond to responsibly in the window of time this event demanded. However, as a result of this exercise, we have established crisis response as a critical use case to understand more deeply in order to meet users' communication and grass-roots community building needs.

LEADING ORGANIZATION CHANGE THROUGH INSIGHTS IN MOMENTS OF DISRUPTION

Insights-lead change within an organization during moments of human crisis and upheaval is possible, as highlighted in the two case studies above. We have incorporated our learnings based on our collective successes and failures, into three parts – prioritizing foundational research, creating a unified insights foundation, and turning insights into action through operationalizing cross-functional alignment.

Step 1: Prioritizing foundational research.

The WhatsApp research team commits approx 30% of its annual research roadmap to foundational research that it carries out with cross-functional insights teams like data science and data engineering. This practice allows our insights disciplines to think deeply beyond immediate product needs to understand where our collective blind spots and future opportunities are. Our work on the Internet shutdown in Iran and the humanitarian crisis in Turkey was facilitated by this commitment to foundational understanding. Firstly, because it's a regular part of our planning process and product development roadmap, we have the necessary acumen across teams to structure and execute this kind of work. This includes the ability to quickly pivot when needs arise like regressing engagement trends we observed in Iran and Turkey. Secondly, because this is ingrained in the way our insights organization operates, our other partners – like product, design, and engineering – and our leadership team expect regular foundational insights as a normal way of working and are able to incorporate them into how we think about the relationship between our product and users.

Step 2: Creating a unified insights narrative to drive alignment and influence.

After understanding the reality for our users in Iran and Turkey, we aligned across internal insights functions on the most salient user needs, and values and barriers represented by the product. In each case study, the process was similar and included triangulation of insights across functions and interpretation of those insights into business needs. We consulted with our data science partners for trend

analysis, customer / product operations teams for front-line user tickets analysis, market / consumer product insights for market-level trends, and market specialists for hyper-local awareness and context building. Utilizing these case studies and others, we have created a living insights document focused on our aligned narrative on protecting users during upheaval and crisis. This broad-scale insights development around an aligned narrative has built a robust foundation that provides a high degree of confidence through converging evidence. Additionally, creating a single source of truth helps stakeholders learn quickly. It is now a durable and scalable artifact used across teams and initiatives.

Step 3: Turning insights into action.

We found that leading organizational change with insights entails not only an aligned, human-centered narrative, but a clear goal and a tangible action plan based on organization realities. Getting cross functional buy-in on the insights narrative is table stakes, but the framing is crucial. As applied social scientists, we employed user-centered thinking in our execution and tied our analysis to business goals. Highlighting where our users experience friction and marginalization is a critical piece of this, but cannot be the sole rationale for our product recommendations. In addition to being the right thing to do for our users, the recommendation to launch a proxy feature was made more compelling because of the business justifications.

REFLECTION

Research played a critical role in investigating the volatilities for our WhatsApp users in Iran and provided an on-the-ground perspective that was otherwise impossible given sanctions and internal policies. WhatsApp's end-to-end-encrypted private messaging also ensured users had access to urgent help during natural disaster disruptions like the recent earthquake in Turkey and Syria. Understanding how users organically use products and features not expressly designed to support use cases can help us identify crisis response needs.

Freedom of expression and information exchange will continue to be threatened in the digital landscape. UN High Commissioner for Human Rights Michelle Bachelet has made it clear that "Internet shutdowns have emerged as the digital world has become ever more important, indeed essential, for the realization of many human rights. Switching off the internet causes incalculable damage, both in material and human rights terms" (OHCHR 2022). Further, reliable access to

secure and private messaging will continue to be paramount because of this technology's potential to prevent communication breakdown and reach diverse segments in times of emergency.

It is our hope that our case studies and approaches inspire others engaged in the understanding of online communication and social contexts to advocate for

supporting users during periods of upheaval and crisis to ensure we solve the most exigent real-world problems for our user base and humanity at large.

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Sangharsh: (nm) Struggle; Conflict, Friction

Creative Workarounds in Negotiating Friction Arising from Patriarchy!

VIDYA GANESH, Ethnographer & UX Researcher

India is a country of people belonging to varied socioeconomic backgrounds. Patriarchy is very much evident in the day to day lives of the different people we speak to in the course of our work.

As an ethnographer I am always interested in and amazed by the creativity of these rural women, their never give up attitude to maintain their identity, the bond they form with their community to continue growing and as a mother of two urban girls am fascinated by the diversity in situations yet similarity of the workarounds in place for both these completely different worlds. I am always struck by the difference in the approaches to life situations but also the commonality of finding a workaround to achieve what they want and slowly expand their boundaries. I can't help but wonder what the future is going to bring to all of these life journeys. In my PechaKucha I am sharing how these women navigate and negotiate the various frictions that arise either from the patriarchy within their homes or from society. How do they get around gatekeepers and what can be done to make their lives more frictionless?

Vidya is an experienced ethnographer passionate about understanding human experience and bridging the gap between research and strategy. I have two wonderful daughters who constantly inspire me.

How Friction Led to a More Intentional Stakeholder Feedback Model for a Federal Research Program

Lessons Learned from Returning DNA Results to Our Participants

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MONICA MEYER, *Leidos*
VICTORIA PALACIOS, *Leidos*

The All of Us Research Program is dedicated to accelerating health research to enable individualized prevention, treatment, and care for all of us. Since the program's beginning, we have committed to returning research results to our participants, including personalized DNA results. Given the diversity of our participant population and their varied experiences with medical research, we knew returning results would require empathy and diligence. To ensure an inclusive and accessible experience for all participants, we introduced intentional friction by slowing down and soliciting feedback from our participants and other stakeholders. This paper describes the evolution of the "intentional" model for stakeholder feedback that our program will implement and continually improve upon in future initiatives.

INTRODUCTION

For those of us who have access to health care, if we get sick—whether it's as familiar as allergies or as overwhelming as heart disease—most of us will receive the same medical treatment as everyone else with the same diagnosis. This one-size-fits-all approach to health care prioritizes the diagnosis and often ignores many other factors that may have increased our risk for disease in the first place or the factors that may contribute to or inhibit healing. Some of these "factors" include the places in which we live and work, the cultures and habits that inform our lifestyle, and the interactions of our genes with each other and our environments.

In our lifetimes, we've witnessed more medical breakthroughs than our parents and grandparents did. So why does personalized health care still elude us? Unlike the current one-size-fits-all approach to health care, personalized medicine—also called **precision medicine**—is a new approach to improving health, treating disease, and finding cures. It acknowledges that each person is unique—our genes, our environments, our lifestyles, our behaviors—and that the interaction of these factors greatly impacts our health. Precision medicine aims to deliver the right treatment for the right person at the right time, and keep people healthy longer. Ultimately, precision medicine can produce more accurate diagnoses, earlier detection, and better prevention strategies and treatment choices.

One of the challenges to making precision medicine accessible to all is that medical research historically has not included all of us. Consider genomics research. Most of what we understand about genomics (which looks at all of a person's genes, versus genetics, which looks at specific genes), and the role of genomic factors in health and disease is based on DNA from men of European descent ("Genetics vs. Genomics Fact Sheet" 2018; "Diversity in Genomic Research" 2023). This lack of diversity in genomic research slows down the potential of precision medicine and contributes to health inequities (Popejoy and Fullerton 2016; Sirugo, Williams, and Tishkoff 2019; Wojcik et al. 2019).

Increasing diversity in genomics research means acknowledging and addressing the root causes for the missing diversity. These include (to name a few):

- Enduring mistrust in medical research due to historic events of mistreatment and abuse (Clark et al. 2019; Kraft et al. 2018), such as the Tuskegee syphilis study ("Tuskegee Study and Health Benefit Program" 2023).
- Experiences with discrimination in medical settings (Kraft et al. 2018).
- English-language skills and other cultural barriers (Kraft et al. 2018).
- Transportation and other logistical barriers (Clark et al. 2019).
- Lack of diversity among researchers (Sierra-Mercado and Lazaro-Munoz 2018).

Additionally, it must be acknowledged that individual minority groups are not homogeneous. For example, our colleagues from the Asian Health Coalition note that there are more than 200 subgroups within the Asian American, Hawaiian Native, Pacific Islander (AANHPI) population, reflecting a diversity in cultures and languages. Likewise, more than 60 million Hispanics/Latinos reside in the United States with origins from at least 17 countries (Moslimani, Lopez, and Noe-Bustamante 2023).

About the All of Us Research Program

The *All of Us* Research Program is on a mission to accelerate health research to enable individualized prevention, treatment, and care for all of us. Part of the National Institutes of Health, *All of Us* is inviting at least one million U.S. residents who reflect the diversity of the country to enroll in the program and share their medical information for research. This includes sharing a blood or saliva sample for DNA research.

As of September 2023, more than 710,000 people have signed up for *All of Us*, including 491,000 who have completed all of the program's initial steps. Of these, 80% identify with a group that has been left out of medical research in the past. This includes people who self-identify as racial and ethnic minorities, as well as many other populations that are considered **underrepresented in biomedical research**

(UBR) because of their self-reported gender identity, sexual orientation, annual income, education, geographic residence, and physical and cognitive disabilities.

As of April 2023, data from more than 413,000 participants have been made available for research ("*All of Us* Research Program Makes Nearly 250000 Whole Genome Sequences Available to Advance Precision Medicine" 2023). This includes whole genome sequences from nearly 250,000 participants (Figure 1). Bringing such diversity to medical research, in general, and genomics research, in particular, is critical for achieving precision medicine for all of us (*All of Us* Research Program Investigators et al. 2019; Ramirez et al. 2022).

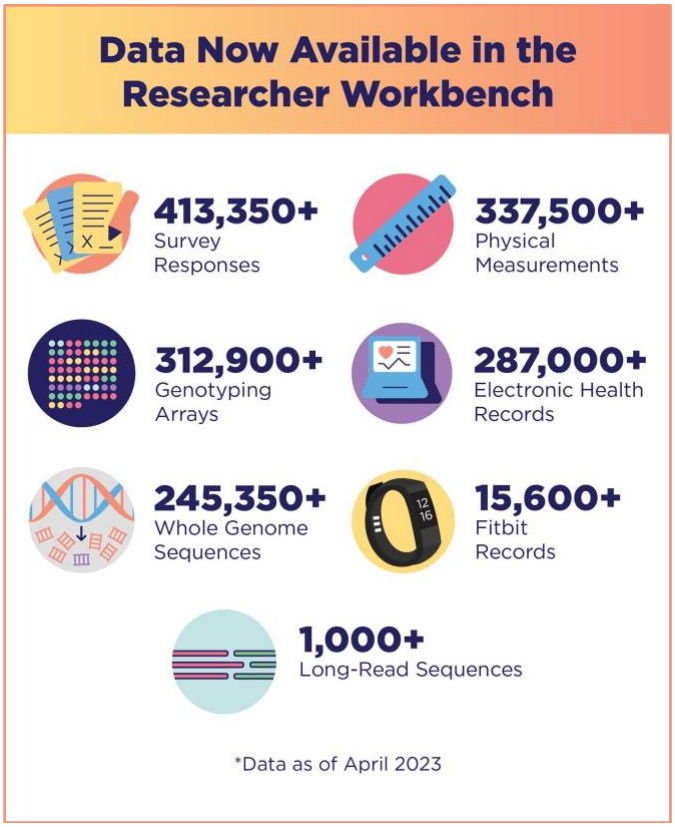

Figure 1. *All of Us* participant data available in the *All of Us* Researcher Workbench. Illustration developed by the *All of Us* Research Program, used with permission.

All of Us attributes our successes to our core values ("Core Values" 2021):

4. Participation is open to all.
5. Participants reflect the rich diversity of the United States.
6. Participants are partners.

7. Transparency earns trust.

8. Participants have access to their information.

9. Data are broadly accessible for research purposes.

10. Security and privacy are of highest importance ("Precision Medicine Initiative: Privacy and Trust Principles" 2022; "Precision Medicine Initiative: Data Security Policy Principles and Framework Overview" 2022).

11. The program will be a catalyst for positive change in research.

Our core values have also helped redefine the traditional relationship between researcher and study participant by putting the participant first. Key among these are the program's commitment to core values 3, 4, 5, and 8. *All of Us* has prioritized giving our participants and other stakeholders a voice in the development of the program to help gain their trust and design experiences that are accessible and inclusive to all. In the five years since *All of Us* launched in 2018, there have been many opportunities for our stakeholders, including participants, frontline staff, and community partners, to give feedback and help create the participant experiences.

Stakeholder Engagement in the Return of DNA Results

Additionally, advances in whole genome sequencing techniques have prompted an important debate in genomics research: Is it time to return health-related genomic information back to study participants, and if so, what information is ethically responsible to return (Wolf 2012)? For *All of Us*, this debate was settled early. We have been committed since the program's beginning to return research results to participants for free, including personalized DNA results. This includes two health-related DNA results.

- **Hereditary Disease Risk**: whether they have a higher risk for certain inherited health conditions ("Hereditary Disease Risk | Join All of Us", n.d.).
- **Medicine and Your DNA**: how their bodies might react to certain medications ("Medicine and Your DNA | Join All of Us", n.d.).

While we knew that offering health-related DNA results would motivate many participants to join *All of Us*, we also knew that returning these DNA results would require utmost care and responsibility for several reasons. Some these included:

- Enduring mistrust in medical research and in government due to historic mistreatment may create apprehension among many participants who identify with an UBR population.
- Our online-first experience can be a burden for those with limited digital literacy and a barrier for those with broadband accessibility issues.

- Limited health or genomics literacy may lead to confusion and anxiety among participants (Schillinger 2020).
- Sharing medically actionable results with participants who may not have access to health care may lead to increased anxiety and fear.

As such, we approached the return of health-related DNA results for participants with empathy and diligence. We looked for opportunities to slow down and create intentional friction to generate traction with our stakeholders and create a better experience overall. We focused our efforts on clearly communicating the risks and benefits of getting health-related DNA results, designing an accessible and easy-to-use participant experience, providing plain language educational materials about DNA and genomics, and including free genetic counseling to ensure participants could talk to a trained counselor about their individual results.

However, this careful approach created new challenges for the project team. Setting up the infrastructure to responsibly return health-related DNA results took longer than anticipated, which elicited questions and frustration from some participants who were eager to get their health-related information sooner. To preserve participants' trust, we strengthened our commitment to involving stakeholders throughout the process to return health-related DNA results.

In this paper, we'll describe the evolution of our approach to engage our participants and other stakeholders to share feedback with us. This evolution had three phases, beginning with an "ad-hoc" phase, then adopting a "centralized" approach, and later envisioning an "intentional" model. During the first "ad-hoc" phase, there was no central organization. Different teams were requesting stakeholder feedback using different methods and sharing the feedback they gathered in different ways. This is historically how we captured stakeholder feedback, so it was not "wrong" per se. It just was not as "right" as it could be, given the sensitive nature of DNA results. As we got closer to launching the return of health-related DNA results, we realized we needed better organization. So, in the second phase, we created an official Stakeholder Feedback Working Group. This group included representatives from various *All of Us* divisions, including, Medical and Scientific Research, Communications, User Experience (UX), Engagement and Outreach, Product, Policy, and others. During this "centralized" phase, the Stakeholder Feedback Working Group established a process to better document, prioritize, and implement feedback. After launching health-related DNA results to participants, we reflected on our process and the lessons learned along the way. Based on that reflection, we proposed a more intentional stakeholder feedback model that we intend to adopt going forward.

WHAT'S AT STAKE IF WE DON'T IMPROVE OUR PROCESS

Because of our commitment to enroll UBR populations, many of whom are justifiably mistrustful due to historic events of mistreatment in medical research, any

effort to engage our stakeholders inherently risks generating more mistrust instead of rebuilding trust. That risk increases if stakeholder engagement is approached without sufficient rigor and intention. This is especially true in the context of returning health-related DNA results to participants but is relevant across every participant touchpoint the program develops. We might compromise participants' trust in and commitment to the program if we do not approach stakeholder feedback with careful planning and intention. For example:

- If we are not clear to stakeholders about what we are doing with their feedback, it could appear that we are just going through the motions and giving the impression of valuing their input while not acting on it.
- If we present work that does not incorporate feedback we previously collected from stakeholders, they may think we did not listen to them and may feel disrespected.
- By demonstrating a lack of coordination in our feedback collection processes, we may cause stakeholders to question our professionalism and our capabilities in general, including the ability to safeguard their data effectively.

These are not merely hypothetical outcomes but real responses that we heard from some of the stakeholders whom we engaged during our initial ad-hoc approach. If through this process we disengage these stakeholders for any reason—whether it's increased mistrust, perceived disrespect, or perceived ineptitude—we will not be able to achieve our goal of precision medicine for everyone, which is dependent on diverse representation in our dataset. To avoid this potential disappointing outcome, we aspired to learn from our mistakes and envisioned this model to approach stakeholder feedback with rigor and intention.

HOW WE DID IT

The "Ad-Hoc" Phase

Returning health-related DNA results to our participants was a complex, multi-year process. Success required meticulous coordination and teamwork across multiple divisions within *All of Us* and with our technology and scientific partners. The participant-facing experience included a coordinated digital communications campaign and digital user experience designed to meet several requirements from both the Food and Drug Administration and our independent research ethics board. Some of these requirements included:

- Explaining all the benefits and risks of getting health-related DNA results upfront.
- Letting participants decide if they want their health-related DNA results.
- Notifying and providing participants access to their results when ready.

- Providing participants with access to a genetic counseling resource and supporting educational materials.

We were committed to including participants, our primary stakeholder, and participant representatives in creating every facet of the experience. *All of Us* has several participant advisory boards we were able to engage for feedback. We also used usability testing platforms to reach proxy participants—adults not enrolled in *All of Us* who fit the demographic profile of certain UBR populations. In addition, we engaged the staff at several of our health care provider organizations and community partner groups, which play a key role in recruiting and engaging with participants. We also recruited subject matter experts from several organizations, including the American Association on Health and Disability, Asian Health Coalition, Essentia Health, FiftyForward, Jackson-Hinds Comprehensive Health Center, National Alliance for Hispanic Health, and PRIDEnet, plus *All of Us* colleagues with expertise in American Indian/Alaska Native engagement efforts and ethical, legal, and social implications of genomic research, to advise us on potential culturally sensitive issues with the content of the DNA reports.

Efforts were made by various divisions and cross-disciplinary teams to solicit feedback from these stakeholders through multiple methods. These methods included: webinars, surveys, focus groups, listening sessions, comprehension testing, content reviews, usability testing, forming a Cultural Awareness Committee, and a friends and family soft launch.

While well intentioned, this ad-hoc approach applied by various divisions created challenges for the project team attempting to respond to and implement the feedback. Since we had not intentionally designed these points of friction, they were signals to us that we needed to improve our stakeholder feedback process.

REFLECTING ON LESSONS LEARNED TO IMPROVE OUR APPROACH

The "Centralization" Phase

After most feedback had been collected and some had already been addressed, a cross-disciplinary team, called the Stakeholder Feedback Working Group, convened to take stock of the feedback that had been gathered. This group included representatives from various *All of Us* divisions, including Medical and Scientific Research, Communications, UX, Engagement and Outreach, Product, Policy, and others. At this time, the Working Group recognized our commitment to gathering stakeholder feedback had resulted in an unexpected challenge: We had received a lot of feedback, and we could not implement all the feedback in time for our launch. To address this challenge, we established a process to better document, organize, and prioritize the feedback. We call this our "centralization" phase.

Centralization of our feedback process proved effective for several reasons and is evidence of the value of creating intentional friction, that is, slowing down to speed

up. Feedback was documented centrally, prioritized using an objective scoring model, and implemented in a more organized fashion. By documenting all the feedback collected by various divisions in one place—in our case a single spreadsheet—and organizing it so the feedback could be sorted and filtered, all teams engaging stakeholders could see what feedback had already been gathered. This prevented us from making duplicative feedback requests, which reduced the burden on our stakeholders. This approach made it easier to see patterns quickly, so similar feedback from different stakeholder groups could be flagged for priority attention. Similarly, this approach also allowed us to quickly tag feedback that was out of scope or unactionable, reducing the quantity of feedback that required review and prioritization.

As we continued to gather feedback, the Working Group documented it in our centralized spreadsheet and met regularly to review it. Having all the feedback in one place also made it easier for the Working Group to score the feedback and prioritize the high-scoring feedback for action. This transparency ensured that each division could weigh in on the level of effort it would take their team to implement changes based on the feedback and identify feedback others might not realize would impact their division. It was also during centralization that we realized we needed to identify a "decider" who would ultimately determine how to resolve conflicting feedback from stakeholders and conflicting opinions among members of the Working Group from different divisions. Finally, centralizing documentation of the stakeholder feedback allowed the working group to more easily track progress as feedback was addressed and better organize a backlog of feedback to consider for implementation after we launched the health-related DNA results experience.

In December 2022, *All of Us* officially began returning health-related DNA results to participants ("NIH's *All of Us* Research Program returns genetic health-related results to participants" 2022). Once the launch was behind us, we took some time to reflect on all the efforts undertaken to gather, prioritize, and implement stakeholder feedback during the development of the return of results experience (Figure 2). Even though the "centralized" phase was an improvement over the "ad-hoc" phase, we realized that centralization had not addressed all the problems contributing to the unintentional friction that had been generated by the original ad-hoc approach—there was room for more improvement. As we examined the evolution of our approach, we documented what had worked, where points of friction remained, and what problems might have contributed to those frictions.

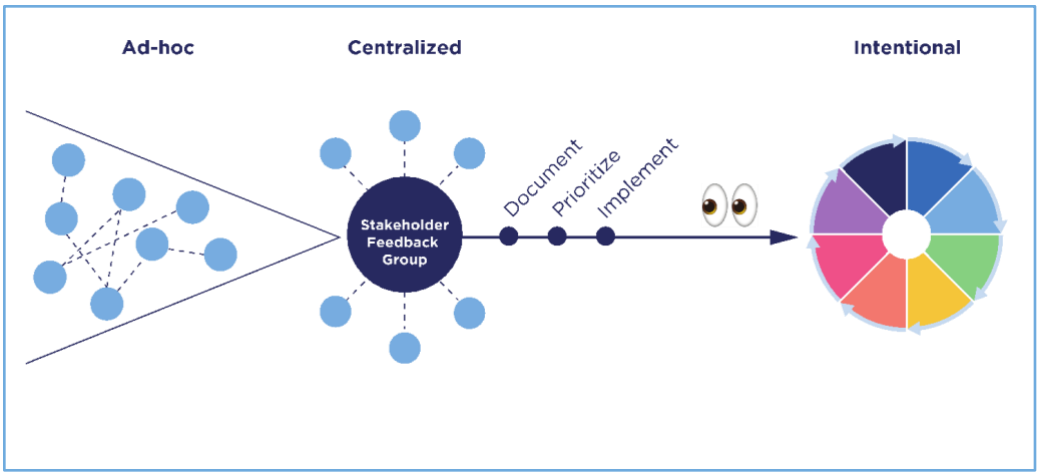

Figure 2. The evolution of our stakeholder feedback process. Illustration developed by the *All of Us* Research Program, used with permission.

Much of the friction that remained was the result of oversights in the process of planning stakeholder feedback engagements, as well as lack of coordination among teams at the outset. One of the most frequent challenges we encountered was managing expectations. Because we did not always set clear expectations with stakeholders at the outset, defining the scope of feedback we were interested in, we ended up with a lot of feedback we could not use, but on which stakeholders still expected action.

It was also only at the end of the process that we realized an oversight in planning had made it difficult to measure our success. This was because we had not collected any baseline metrics against which to test our improvements. Since we were launching a brand-new experience, we would not have been able to gather baseline metrics from a functioning experience, but we could have established more baseline metrics in our earliest stakeholder reviews, against which we could compare the feedback on later iterations that had been improved based on feedback.

Finally, even though centralization allowed us to act on the highest priority feedback more efficiently, many stakeholders were still left unsatisfied because we failed to communicate our decisions and actions back to them. While we thought we were honoring a commitment to design for them by including them in the process, by not closing the loop, we left several stakeholders wondering if we had actually honored this commitment.

After documenting the lessons we learned from our ad-hoc and centralized approaches, we set out to design a more intentional model for stakeholder feedback that would address the gaps in our approach and ease the remaining points of unintentional friction. We hope that by applying this model, future project teams can ensure a smoother process of gathering, documenting, prioritizing, and implementing stakeholder feedback.

A NEW "INTENTIONAL" MODEL FOR STAKEHOLDER FEEDBACK

Figure 3. Our proposed "intentional" Stakeholder Feedback Model.
Illustration developed by the All of Us Research Program, used with permission.

Our working stakeholder feedback model is a continuous cycle of eight distinct phases (Figure 3):

- Plan
- Recruit
- Collect
- Document
- Prioritize
- Implement
- Close the loop
- Measure

For each phase, we recommend several activities that are designed to capitalize on the lessons we learned during our ad-hoc and centralized approaches to stakeholder engagement.

Plan

Thorough planning helps ensure all the other phases go smoothly from feedback topics of interest and methods for gathering feedback, all the way through prioritization and measuring impact. It is important to plan not only what topics or questions will benefit from stakeholder feedback but also the following details:

- Define what success looks like. Success metrics and targets may evolve over the course of the project and will depend on your existing baseline knowledge and metrics. For example, one measure of success we set out to achieve with our health-related DNA results was over 90% comprehension of the personalized DNA results reports we shared with participants.
- Once you have defined your success metrics, document any available baseline knowledge and metrics. You can use these to anchor your targets and more easily identify successful improvements. This information may also inform and guide the questions you ask your stakeholders.
- Identify your audience. Knowing your audience will help you decide which stakeholder groups you want to invite to provide feedback.
- Determine the method(s) you will use to collect the feedback. If little knowledge is available, you may want to start with qualitative methods, such as focus groups and listening sessions. If extensive knowledge exists, you may want to use methods that allow you to ask precise questions or measure specific changes to the user experience, such as surveys, usability testing, or comprehension testing. Consider how you might need to tailor your feedback collection methods to your audiences' needs as well.
- Select rubrics to help you categorize and prioritize all feedback objectively and consistently. We used a product management prioritization tool called the RICE scoring model. Using this model, the Working Group scored each piece of feedback using four factors: Reach, Impact, Confidence, and Effort (Singarella et al., n.d.).
- Agree on a trade-off process to discuss and resolve conflicting feedback if/when it arises. This includes identifying who the "informers" and "deciders" will be.

Recruit

Identify potential stakeholder groups based on the audience and your defined problems or questions and invite representatives from the stakeholder groups to provide feedback. Also consider the following:

- Precisely define the scope of the feedback you are requesting. (e.g., review only the images as we cannot make changes to the copy at this time).

- Clearly explain expectations (e.g., this is a one-time, virtual focus group that will last two hours, or this is a three-month commitment and may involve five hours of your time each week).
- Determine if you can provide incentives or tokens of appreciation for stakeholders' time and input.
- Share your plan for when and how you will close the loop after stakeholders provide their feedback.

Collect

Apply the method(s) you will use to capture the feedback. Remember to tailor the feedback-collection methods to the stakeholders and the question. Also consider how you might make the experience as frictionless and flexible for your audience, depending on whether you are using quantitative or qualitative methods. For example:

- For quantitative methods, provide clear instructions and set firm deadlines.
- For qualitative methods:
  - Assign a note taker,
  - Record the sessions, if possible,
  - Create opportunities for stakeholders to share offline, asynchronous feedback. This could be as simple as (1) asking stakeholders to send additional feedback via email or in a separate document, (2) scheduling a one-on-one phone call for those who request it, or (3) providing an online form (or survey) stakeholders can complete.

Document

From the beginning of the stakeholder engagement process, document all feedback, regardless of how minimal or extensive, in a centralized location, such as a spreadsheet. Also, make the feedback accessible to all individuals and teams who will help prioritize and implement feedback. It also is helpful to categorize the feedback as it is received. For example, we categorized the feedback into one of four buckets:

- Launch-blocking: This is feedback we agreed should be prioritized for implementation prior to launch.
- Needs more analysis: This is feedback that we knew would require additional analysis before we could prioritize it. Perhaps it was unclear how many teams would need to be involved in implementing the change or how much time would be required to implement the feedback.
- Duplicate: This category helped us understand how often we received similar feedback from different stakeholders.

- Out of scope: We used this category to track feedback that was out of scope for health-related DNA results. For example, it was not uncommon for a stakeholder to share additional feedback about other elements of the program that were tangentially related to the return of health-related DNA results. One example of this type of feedback was requests for other types of results besides DNA results, such as blood type.

Prioritize

Apply the evaluation rubric selected during the Plan phase to prioritize all the feedback objectively. As noted above, we used the RICE (Reach, Impact, Confidence, Effort) scoring model.

Once we had documented all our stakeholder feedback, it was clear that we would not be able to address all the relevant feedback we received. Using the RICE scoring model helped us objectively decide which feedback to prioritize and implement before we launched, what needed to be implemented but could be implemented after launch, and what feedback we should monitor and revisit after launch. The RICE model also ensured that we considered constraints, such as timelines, and consulted with all parties involved in implementing the feedback to understand the reach, impact, and effort.

Implement

Implement all the prioritized stakeholder feedback and, depending on where you are in your project lifecycle, either test the impact of the changes or launch and prepare to measure your product's success. The key here is to implement feedback that has been prioritized. It can be tempting to implement non-prioritized, low-effort feedback for the sake of making progress, but this can take time and resources away from the most important work.

A couple lessons we learned during implementation:

- It is important to coordinate and communicate implementation projects across all individuals or teams involved in the overall project. For example, the Communications team developed an email and text message campaign that notified participants about the option to receive personalized DNA results. The team presumed some technical features would be available to use in these digital communications. Only during testing did it become apparent that the functionality was not working as anticipated. On another occasion, the UX team implemented updates to the online participant experience based on findings from usability testing. As a result, the offline instructional materials for participants were incorrect and needed to be updated.
- You can use implementation projects as an opportunity to gather more feedback. We initially launched the return of DNA results to a group of 50 "friends and family" participants to test the experience. Because we had

access to these friends and family, we asked them to complete a survey so we could gather more feedback on the effectiveness of the final product.

Close the Loop

Closing the loop is about creating relationships and building trust with stakeholders. In our experience, we found that many stakeholders were very passionate and thoughtful about their feedback and became frustrated when they did not hear back from us.

Report back to the stakeholders who contributed feedback so they know what was or will be implemented. It's equally important to let them know what was not implemented and why. This phase is also an opportunity to ask stakeholders for suggestions on how to improve the process for future projects.

Closing the loop is a work in progress at *All of Us*. We continue to investigate how best to standardize the process of closing the loop and reporting back to stakeholders in a timelier fashion.

Measure

To measure is to evaluate the impact of the stakeholder feedback. This may be done by monitoring the analytics you put in place during the Plan phase, doing additional user testing, or comparing new data against the baseline data to check for improvement. As you monitor your analytics, look for new problem areas that may need to be addressed. This will inform your next steps and the cycle can begin again. Engage stakeholders to help address the newly identified problems.

WHERE ARE WE NOW?

Despite the challenges we faced gathering, prioritizing, and implementing stakeholder feedback, there is evidence to suggest that the stakeholder feedback we implemented did have a positive impact on the resulting experience. For example, when our UX team conducted the final comprehension testing of the online DNA results reports, the scores were approximately 97% for the Hereditary Disease Risk report and approximately 98% for the Medicine and Your DNA report. Additionally, we received no "launch-blocking" feedback from the Cultural Awareness Committee or the "friends and family" participants included in our soft launch.

We can also look to data from our Support Center for evidence of success. Between the "friends and family" soft launch in September 2022 and September 2023, our Support Center has fielded 26,223 participant inquiries related to DNA results. Most of these were from participants asking when they would get their DNA results. There were only 1,067 inquiries about genetic counseling and only 110 on how DNA results might impact insurance coverage. Based on our stakeholder feedback, we had anticipated participant questions about genetic counseling and the

impact of DNA results on insurance coverage. The Support Center data suggests that the materials available to participants on these topics were easy to understand.

Also, participants who get their health-related DNA results have the choice to complete an anonymous satisfaction survey about their results. These survey results suggest that a majority of participants were satisfied with the content of their results and found them easy to understand, trustworthy, and comprehensive (Figure 4).

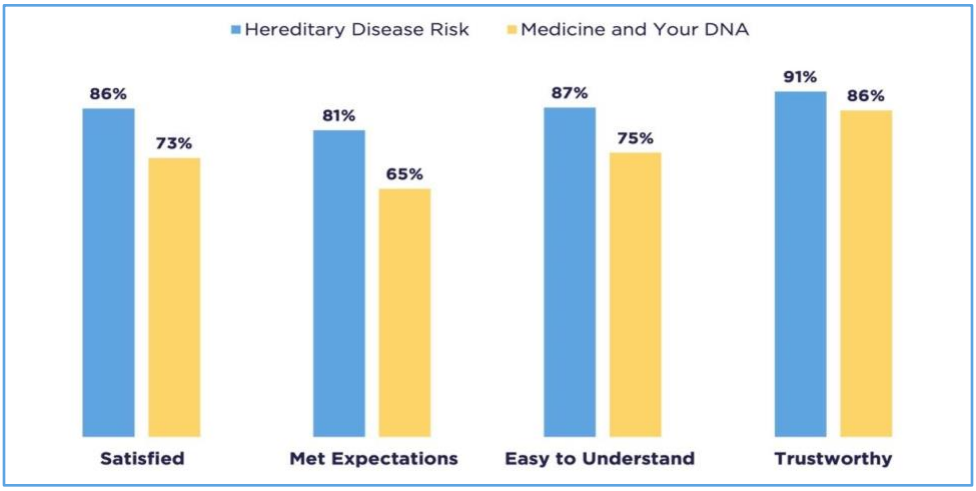

Figure 4. Participant satisfaction with health-related DNA results (November 2022 through September 2023). Chart developed by the *All of Us* Research Program, used with permission.

These data now serve as baseline metrics against which we can measure the success of future improvements to the experience. We continue to gather participant satisfaction data and monitor it regularly, looking for new signals of unintended friction.

Our next step is to close the loop with our stakeholders by letting them know what feedback we chose to implement and why, so they will feel respected as our partners in the program.

As to the future of the stakeholder feedback model, we anticipate using the model to continue to solicit stakeholder feedback to inform such improvements. We also plan to socialize the model across the various *All of Us* divisions so other project teams can learn from our experiences. We expect that in the process of socializing the model, we can also gather input from our internal stakeholders to continue to evolve the model. In fact, we can apply the model to this internal stakeholder engagement as a test case.

We recognize that the model is heavily based on personal experience and may also be improved upon by incorporating further research into best practices and other existing models for stakeholder engagement. Similarly, we hope to improve the model by sharing it externally through conferences and other forums where we might gather input from our colleagues.

CONCLUSION

As *All of Us* enters its sixth year of enrolling participants, the program is in a phase of major growth, scaling, and maturing from its startup phase. This presents an opportune and essential moment to improve our approach to stakeholder feedback by applying and continuing to evolve this model.

For the *All of Us* Research Program to successfully enroll at least one million participants who reflect the diversity of our country, we will continue to engage with our stakeholders. Their feedback is critical to developing a research experience that participants trust and support. The data and information they share will not only help advance precision medicine research but also give them opportunities to learn about their own health.

If we fail to continually reflect on and improve our stakeholder feedback process, we risk compromising our participants' trust in *All of Us*. We hope that by slowing down to speed up—by applying the intentional model to our stakeholder feedback process—we can mitigate that risk and fulfill our mission of accelerating health research to enable individualized prevention, treatment, and care for all of us.

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NOTES

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Observing Friction through Ethnography and Experience Prototyping in the Postpartum Period

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During the postpartum period, significant clinical and social supports exist for the care and wellness of a newborn baby. Yet over the same six weeks, new moms report feeling abandoned and alone. In this case study, we share the research methods we used to evaluate an early prototype of a digital tool designed to offer support and healing guidance to postpartum moms. We discuss our strategies for onboarding participants during this period of significant transition, and for engaging them for six weeks through a novel study design. This work highlights the deep friction new moms often face navigating their own physical healing while so much attention and care—theirs and others'—is focused on the baby. It also offers an approach to reducing an ongoing friction in new product development: what people say they want may differ significantly from what they actually want or need in real-life contexts.

Key words: maternal mortality, postpartum support, femtech, experience prototype, research design

INTRODUCTION

According to data from the Centers for Disease Control and Prevention and the Organisation for Economic Co-operation and Development, the U.S. maternal mortality rate places us last among high-income countries. Our overall rate of 24 deaths per 100,000 women is nearly twice as high as the next country on the list, and three times higher than the mortality rate of most other high-income countries (Gunja, Gumas, and Williams 2022). In the U.S., 40% of all maternal deaths occur in the early postpartum period (from one day to six weeks after delivery) (Tikkanen et al. 2020), and Black and Native women are two to four times as likely to die as white women (CDC 2023).

A clinical research team at the University of Pittsburgh saw the potential for a digital tool to help address the maternal mortality crisis in the U.S. Through a person-centered and stakeholder-engaged process, they conceived of a mobile application that would help new moms carefully monitor their healing and recovery. This app would provide clinical information about a normal healing trajectory and when to seek medical care. They developed an early Figma prototype to articulate key features of the tool, but were left with many questions about how it might actually fit into the lives of new moms during the postpartum period. In 2021, the clinical research team (led by one of the authors) launched a collaboration with Dezudio, a small design consultancy (led by the other authors), to evaluate the

prototype and to determine what updates might be necessary to help it better fit into the lives of postpartum moms—before building a functional version of the app.

This case study describes our interdisciplinary design research collaboration and the frictions that were identified in the process. First, we provide some context about the maternal mortality crisis in the U.S. and the gaps this tool is intended to fill. Second, we share the methodology we used to gather formative design input from moms who had recently given birth, and to evaluate an early "experience prototype"—a lightweight version of the tool built using off-the-shelf technologies—that we sent home with new moms as they left the hospital.

Finally, we will provide our key takeaways, focusing on frictions we encountered in this work. A clear picture emerged of a deep friction new moms often face in navigating their own physical healing while so much attention and care—theirs and others'—is focused on the baby. This friction is experienced at personal, social, and clinical levels; the moms we spoke with recognized their tendencies to forget about themselves and their own needs, the behavior of friends and family members who only ask after the baby, and the sharp contrast between the medical attention they received before delivery and after. Understanding the forces that contribute to this situation has proven essential in shaping the design of the tool and the tone of the information it provides.

The other friction we observed is common in new product development: what people *say they want* may differ significantly from what they *actually want or need* in "real life" contexts. But how can we create opportunities for meaningful evaluation of something that does not yet exist? Our approach to this research enabled us to conduct interviews that were grounded in lived experience—not based on speculation or conjecture about likely preferences based on a brief introduction to the concept in isolation from its true context.

We hope this case study sheds light on the frictions postpartum moms face and brings their experience to the forefront as our society continues to work to combat the maternal mortality crisis. We also hope to reduce an ongoing friction in new product development by sharing three principles that can help bring new innovations to life that are better aligned with the true needs and goals of the audiences they are intended to serve.

CONTEXT

In response to the overwhelming maternal mortality crisis in the U.S., researchers at the University of Pittsburgh developed a concept for a mobile app that would provide new moms with timely information relevant to their own healing in the first six weeks of the postpartum period. A key feature was a symptom tracker that would help new moms self-triage their symptoms, including those which may be routinely misidentified as non-critical (e.g., severe headaches). Customized results from each day's tracker would emphasize the importance of taking action on symptoms or

situations that are cause for concern, and offer reassurance when self-reports indicated a "normal" healing trajectory.

To develop this concept, the research team took a person-centered approach, grounded in frameworks of health equity. The process involved engaging with stakeholders, including those who had experienced the postpartum period, throughout the conceptualization and early design process. The team also incorporated evidence-based best practices to address identified gaps in knowledge, preferences, and practice related to postpartum care and healing (Krishnamurti et al. 2022, Krishnamurti, Simhan, Borrero 2020).

During the initial design phase, the research team enlisted support to prototype a digital tool in Figma that would illustrate key screens and features. While the features and content for the app emerged from extensive stakeholder engagement and evidence-based best practices, the clinical team was left with unanswered questions about the tone, delivery, and timing of the content. More generally, they remained unsure about how this new tool might fit into the cadence of the lives of new moms during a time of potentially overwhelming adjustments and significant healing.

Before investing to build a fully functioning version of the app, the team sought to develop a more robust picture of the lived experience during this crucial period to help the tool fit as seamlessly as possible, and to maximize its utility and uptake. They also wanted to evaluate the content delivery and planned cadence to see how well it matched the need for information in this time period, and to determine what adjustments might be necessary. Finally, the team needed to achieve these research goals without adding extra burden or intruding on a time in a new mom's life that can be overwhelming, joyful, and frightening all at once. The data collection described below was approved by the University of Pittsburgh's Institutional Review Board (#s 21070134; 22020017).

With the aforementioned objectives in mind, the clinical team partnered with Dezudio to develop a plan for conducting additional research. In early brainstorming sessions, we articulated a long list of driving questions. Would new moms find value in receiving a daily "drip" of information, or would they be overwhelmed by it? Was the right content being offered at a time when it would be useful? Would they appreciate the sole focus on mom's healing, or would they want information about the baby in order to gain real value or to remain committed to using the tool? How often would new moms want to—or be able to—find the time to use the app? How and why would they engage with the symptom tracker, and would they find that feature useful for understanding what was "normal" or cause for concern?

The clinical team originally imagined that information in the tool would be served in small topics day by day, but they didn't feel fully confident that this mode of delivery would be preferable to a fully accessible resource library or set of reference articles. They were also uncertain about the kinds of topics that would be most useful to new moms at each stage of the postpartum journey, and were curious whether the tool should include content about babies (feeding, sleep, development,

etc.) or if that information would detract from the focus on moms' healing. Answers to these and other questions would inform the next iteration of the app, allowing the team to make necessary adjustments before investing more heavily in the development and dissemination phases.

METHODOLOGY

Our research initiative included two phases. First, we conducted interviews with new moms, and invited them to complete a card sort activity. Then, we recruited moms who had just given birth to participate in a six-week "experience prototype" evaluation, combined with an at-home video diary study. We describe each phase in detail below.

Interviews and Card Sort: Getting Immersed and Gathering Early Input

The initial phase of research helped the Dezudio team get immersed in the postpartum space, and allowed us to investigate a few key questions to inform how we built the experience prototype that would be used in the subsequent phase. We conducted eight interviews and topic card sorts with new moms who were just past the acute postpartum period, ranging from six to eight weeks postpartum. In these interviews, we asked participants what information they were searching for and when, and which digital tools they were already using to seek it out. In the card sort exercise, new moms reviewed a broad collection of possible informational topics relevant to the postpartum period. Then they sorted and prioritized these topics—and suggested new ones—based on what was most important to them. Finally, we brainstormed together about possibilities for how a digital tool might have supported them through their postpartum experience. We introduced the existing concept prototype to discuss what they liked and what might be improved.

Outcomes from these interviews directly informed the prototype we created for the subsequent phase of research, where we aimed to provide participants with the experience of having access to the information and key features from the tool. (For example, rather than choosing between a single topic each day or a comprehensive library of information, we built the prototype to accommodate both modes.) We also used the context and insights we gained from the interviews to plan the details of the next phase—where new moms would have access to an experience prototype from the first day of their postpartum period.

Experience Prototype and Diary Study: Evaluating the Approach

For the second phase of research, we wanted participants to experience having access to the tool's content and symptom tracker in real-time, as they navigated their physical recovery in those early weeks at home with a new baby. Nine new moms who enrolled in the study accessed the prototype for six weeks. They participated in interviews at the midpoint and at the end of the study period. At each interview, we

discussed participants' perceptions of the tool's utility, as well as any motivations for using it. We also sought to better understand how this app did and did not integrate with their lived realities in the postpartum experience. We evaluated the tool's content and structure, and whether the scenarios of use in which we hypothesized it might provide value were correct—or if we needed to adjust features and functionality to help it better meet real-world needs.

In researching off-the-shelf tools we could use to simulate how the app was intended to work, we learned quickly that we would be best served by relying on an ecosystem of services carefully orchestrated to work together. We used Notion, a "wysiwyg" hyperlinked document builder, to create content pages in the app for each daily topic, and for more detailed articles. Building an information-heavy experience prototype required us to create all the content the tool would ultimately deliver, a task that is often left to later in the development process. We also needed to consider the tone and reading level. To be inclusive and accessible to all potential users of the tool, the articles and other informational pieces were written with the target of a sixth-grade reading level.

We built the daily symptom tracker using the survey tool Qualtrics, and were able to embed questions directly on each day's topic page in Notion. We built out the logic so participants would receive realistic results and recommendations based on the responses they entered. We also embedded short surveys asking them to rate the usefulness of each day's content, and prompting them for other additional topics they were curious about on any given day. To simulate notifications, we used SlickText, an SMS marketing service, to send each participant daily text messages that linked through to each day's topic in the prototype. The link shared with each participant for each day was unique, and for the duration of the study, we used Linkly—a URL shortener and link tracking service—to monitor whether and how often participants clicked from their text messages to the prototype tool.

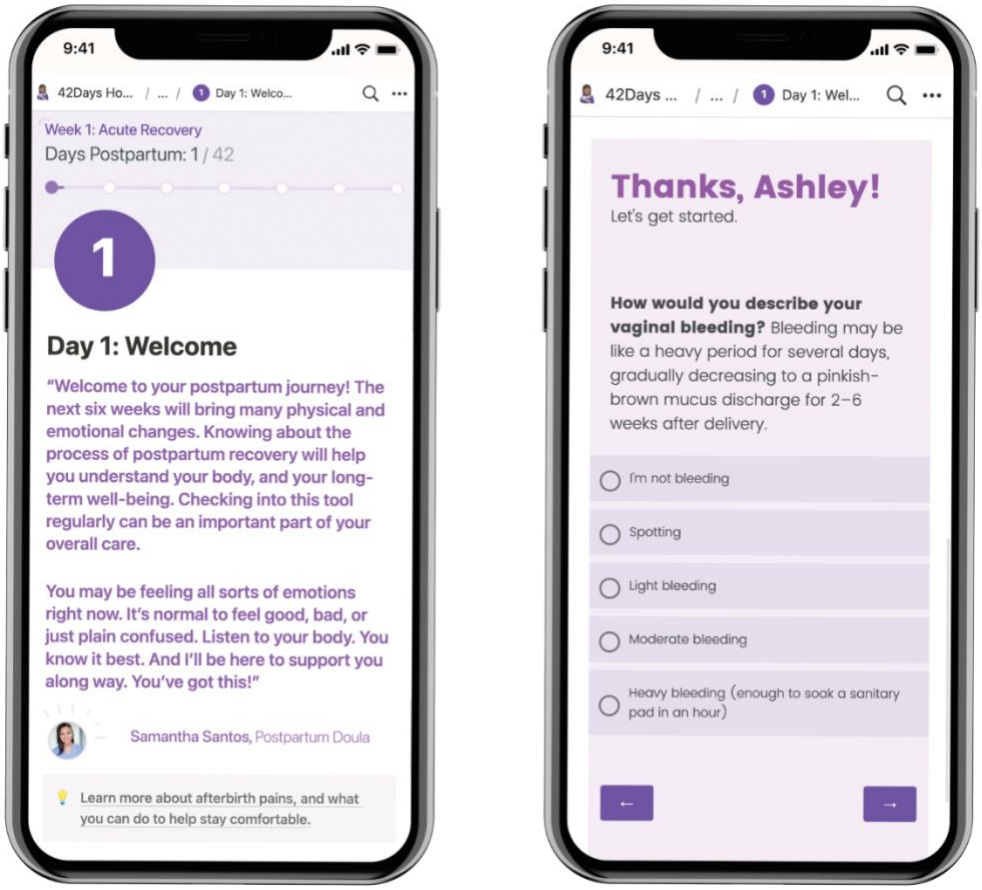

Figure 1: Screenshots from the "simulated app" prototype, which was built using off-the-shelf products and services. The screen at left shows sample informational content in a Notion page. The screen at right shows an embedded symptom tracker survey we built using Qualtrics, including logic for meaningful results. Image © University of Pittsburgh, used with permission.

To give us a richer view of the time between interviews, we offered an optional video diary portion of the study. Once a week over the duration of the six weeks, the day's text message was a diary prompt asking participants to reflect on a particular topic related to their experience and how they used the app during this time. We provided two lightweight, portable video cameras for recording responses to diary prompts. (The cameras had no internal playback or editing capability, which encouraged participants to record entries "off-the-cuff" by limiting opportunities for self-scrutiny or the need to review, edit, or re-record.) Participants received a small amount of additional compensation for weeks where they made diary study entries.

Over the course of four days, we recruited 15 new moms on the postpartum floor to participate in the experience prototype and diary study. Participants agreed

to receive a daily text message and speak to us twice in interviews. They were compensated for each of their two Zoom interviews, but no incentive was tied to whether or not they actually interacted with the prototype. This approach allowed us to speak with them about how and when it was feasible and valuable for them to use the tool (or not), and why. Additional compensation was provided for each diary study prompt for which they recorded video.

Due to their disproportionate risk in the postpartum period, we prioritized recruiting people of color and beneficiaries of Medicaid insurance. We also sought participation from those who had different delivery methods (vaginal, planned C-section, unplanned C-section) or had experienced complications such as gestational diabetes, hypertension, pre-eclampsia, preterm delivery, and having a baby in the NICU. The participants we recruited were White non-Hispanic (n=8), Black non-Hispanic (n=2), Multiracial Hispanic (n=2), Black Hispanic (n=1), White MENA (n=1), Asian (n=1). Of those recruited, eleven ultimately interacted with the prototype and nine participated for the full six weeks. (The other two were unavailable for both midpoint and endpoint interviews, thereby not meeting the participation requirements for qualitative data sharing.) Our final breakdown was White non-Hispanic (n=6), Black non-Hispanic (n=1), White MENA (n=1), Asian (n=1).

KEY INSIGHTS

Through these two phases of research, we identified and prioritized tactical updates to improve the structure of the app and its content. For example, participants wanted topics that were more tailored to their specific situation (like whether they had a vaginal delivery or C-section, or had a baby in the NICU), and suggested additional topics based on their experience. Another example was related to symptom tracker usage. Participants used it heavily in the first two weeks, but then tapered as they built a solid understanding of key risk factors. This pattern led us to consider how the app might promote the symptom tracker early on, but let it fade into the background as healing progresses and information needs change.

We identified opportunities for many additional tactical updates, but the broader significance of this work lies in the two fundamental frictions we describe below. We hope that what we learned may help others to understand and center the lived experience of new moms in the development of technology and tools that are built for them. We also hope our approach to research and the principles we share will help other researchers find ways evaluate their ideas early and in the context of a lived experience—even when it seems challenging to access participants.

1. Understanding a key area of friction of the early postpartum experience can fundamentally shape how we design tools that support new moms.

After delivery, birthing parents experience a fundamental friction between a critical need for self-care in a context where their attention (and the attention of people around them) has largely shifted to the new baby. Across interviews and video diary studies with our 17 participants, a clear and consistent narrative emerged about their experiences in the weeks preceding and shortly after delivery.

New moms reported experiencing a dramatic shift in attention and care—both internally and externally—between the weeks leading up to delivery and their early weeks at home once they leave the hospital. In the last weeks of pregnancy, birthing parents attend frequent medical appointments to monitor their health and the progress of the pregnancy. Special circumstances or concerns are monitored carefully, and patients receive specific instructions about what might be cause for concern. Friends, partners, and relatives check-in frequently on how expectant moms are feeling. Once the baby comes, moms' attention veers radically from their own pregnant bodies to this new and seemingly fragile life that exists outside of them. Friends' inquiries also shift from concerns about the mom's wellbeing to how the baby is settling in.

The switch from pregnancy to delivery to the first few days and weeks home is a sharp and jarring contrast for new moms—often leaving them feeling in the dark and abandoned to figure things out on their own. During the postpartum period, significant clinical and social support exists for the care and wellness of a newborn baby. Yet over the same six weeks—and despite a whirlwind of information provided in the hospital at delivery—many new moms we spoke with reported feeling anxious, abandoned, and alone.

> "I have more questions about her rather than me because I kind of put myself on the side." (N-S2)

> "...We don't stop and think until, like two months past. What about me? Maybe three months on to three months past? Well, that's what happened to me. You just want to focus on the baby and whatever is around you. I forgot about myself at all. Totally." (R-S1)

> "First time around I didn't have any support in terms of information. You leave the hospital and it's terrifying. You have the pediatrician for support for the child but I didn't know how to care for myself." (V-S2)

> "I just wasn't informed about how long and what to look out for symptom-wise. When I had an ectopic pregnancy, they rattled off the symptoms to look out for every visit. I didn't get that after delivery." (V-S2)

For many, the hazy and often uncertain postpartum period ultimately becomes a time of salient learning and significant evolution. But for some, the lack of focus and education on their healing—including what is considered normal, and what is cause for concern—becomes a critical risk factor that may impact health outcomes significantly. Experts identify "patients' knowledge of warning signs" and "not recognizing when to seek care" as critical issues related to maternal mortality risk. (Building U.S. Capacity to Review and Prevent Maternal Deaths, 2017. Report from maternal mortality review committees: a view into their critical role.)

The sensitivity we developed to this friction through meaningful, grounded engagement with new moms in the postpartum period will fundamentally inform our work moving forward on the tool. We had a firsthand view of the essential role that a digital tool can play in providing critical information and helping new moms pay attention to and prioritize their own care. Moving forward, our design decisions are informed by a clear view of the inherent friction new moms face in caring for a new baby and themselves.

2. Evaluating an "experience prototype"—a version of a proposed tool or service accessed in its true context—*early in the design process* can help reduce a significant ongoing friction in new product development.

Prototyping an experience is challenging, but yields significant practical value in reducing a longstanding friction in new product development: How can users respond or react to a new product that does not yet exist in the world? And how can we mitigate the gap between users' anticipated preferences, and their real preferences once they have access to something new? This friction can be reduced by applying three important principles for conducting early design research.

Make a Prototype That Reflects the Essential Experience, and That People Can Engage with in Their Real Lived Circumstances.

Our approach to this research relied on the use of an "experience prototype," which Marion Buchenau and Jane Fulton Suri of IDEO described as "methods and techniques which support active participation to provide a relevant subjective experience" (Buchenau and Suri 2000, 425). Given the nature and complexity of this time in peoples' lives, we knew it would be unlikely that they could accurately anticipate what they might want or how they might feel during that timeframe. We were committed to finding a way to let them have that subjective experience using a simulated version of this tool, so they could react to and analyze what it was like in the moment.

The value of engaging with new moms in context was demonstrated by a key difference between what we heard in interviews from new moms who had not experienced a version of the tool during the postpartum period, and from moms interacting with the prototype during the six weeks after delivery. In the interviews,

our participants were excited about the possibility of a tool that would be focused purely on their needs—even to the exclusion of information related to the baby. When asked explicitly whether a tool with baby content might provide more value, participants emphasized the availability of tools and resources devoted to the care and needs of a new infant, and the dearth of information for moms in the postpartum period.

> [Interviewer] "You might have noticed that there's no information about babies in the tool—that it's all about just you as mom. Do you have any thoughts about that?" [Participant] "I think it's great. Like, I mean, it's hard not to notice, you know, the difference in the hospital and beyond of like, just the amount of attention the baby requires versus like the mom. It's like, 'Are you dying? No? Good. Let's go.'" (H-S1)

> "I would love to have an app that's just focused on me. 'Cause I'm not getting it anywhere else." (K-S1)

However, when given the chance to interact with a comprehensive prototype in the midst of managing their new babies' care, participants expressed a clear preference for including information related to the baby. They reported that their wellbeing and that of the baby were inextricably linked; supporting them in caring for their new infant was essential to helping them feel fully supported.

> "I remember doing the app in the first couple days. There was a question about is there anything else you're interested in. I kept putting in whatever the problem was with the baby—how to deal with overtired baby, how to deal with gassy baby. ... I think that it is a good thing that has an app that is just focused on mom. I know I just contradicted myself. But having nuggets about baby could be helpful for mom's mental health." (E-S2)

> "A little more baby information would make it more of a 'go to.'" (K-S2)

In this process, we first identified and prioritized what aspects of our proposed experience were most essential. Then we sought efficient and affordable ways to represent those key elements to our audience, and spoke with them about the subjective experiences our prototype was able to provide. In our case, they symptom tracker and the information in the tool—promoted through a daily cadence of topics and notifications—were critical, so we found ways to represent those features by cobbling together a prototype using off-the-shelf tools that was good enough to give our participants a view of what their experience might be like if an app like this was fully built.

When Recruiting Participants in Complex Situations, Find Creative Ways to Meet People Where They Are

Recruiting moms to participate in the experience prototype and diary study during the postpartum period was a daunting task. We were initially concerned whether we would find people who were willing and motivated to participate. We considered recruiting through birthing networks and online forums, but were uncertain about recruiting pregnant women who might drop out with the flurry of activity once the baby arrived. In the early phases of defining the study, we shared our plans and target participants with clinicians and other patient care practitioners at our affiliated women's hospital, and gathered their input on possible strategies for recruitment. Fellow researchers, hospital clinicians, and doulas offered feedback on materials, study requirements, and participant incentives—and encouraged us to recruit in the hospital after delivery rather than seeking participants before delivery.

We enlisted a student from the University of Pittsburgh who was also trained as a doula to conduct recruitment. She had credentials that allowed her to be on the postpartum floor and was able to easily establish relationships with the nurses working there in the days leading up to our recruitment window, letting them know when she would be circulating on subsequent days and making sure they understood her goals and the aims of the study.

On recruiting days, the recruiter was able to enter the rooms of new moms on the postpartum floor, checking in on them and talking with them about their birthing experience. She introduced the opportunity to participate in the study using a one-page flier that clearly outlined the process and articulated requirements for participation. She outlined the information that would be provided in the tool, and what they could expect to learn from it. Ultimately, she was able to paint a picture to potential participants not only of the value their participation would bring to developing something to support new moms like themselves, but also how they would gain valuable and timely information by participating, which was a likely motivator.

By engaging early and often with stakeholders and hospital staff, we built relationships and leveraged their expertise to develop a successful recruiting strategy. We were able to gain access to participants in the place where they naturally gathered. We enlisted the support of an expert liaison who could connect with prospective participants in a meaningful way, and clearly explain the involvement required and possible benefits of participation. These factors helped us successfully attract participants, and will inform our recruiting strategies moving forward in similarly challenging recruiting scenarios.

Make the Requirements for Participation as Simple as Possible, Clearly Communicate Requests to Potential Participants, and Stay Out of the Way.

Because our research involved participants at a complex and sensitive time, we pushed ourselves to prioritize research goals carefully and to make our requests as simple as possible. We set out to answer our most critical questions in ways that would allow participants to engage authentically without feeling pressure to interact with the tool or behave in a certain way due to their study participation.

Our streamlined set of criteria for participating included only two requirements: receiving daily text messages promoting a link to the day's topic in the app prototype, and participating in two interviews (once at the midpoint around four weeks, and once at the end after week six). Internally, we wrestled with issues of scope creep and continually pared back both in terms of process and in the information prototype we gave participants access to during the study.

We made video diary entries optional to simplify the study requirements, but offered additional compensation for those who chose to complete them ($10 per video diary entry). There was no requirement that the participant ever interact with the prototype, or click through on the links they received by text message. When we interviewed participants who only engaged with the prototype a little or not at all, we were able to gather valuable information about why the app was not fitting into their lives during this time.

Our team sees preparing assets and materials for those that will participate in design research as a communication and experience design exercise. The team put together a "study kit" for potential participants that included an instruction sheet, two cameras, and a baby blanket to be sent home with new moms from the hospital.

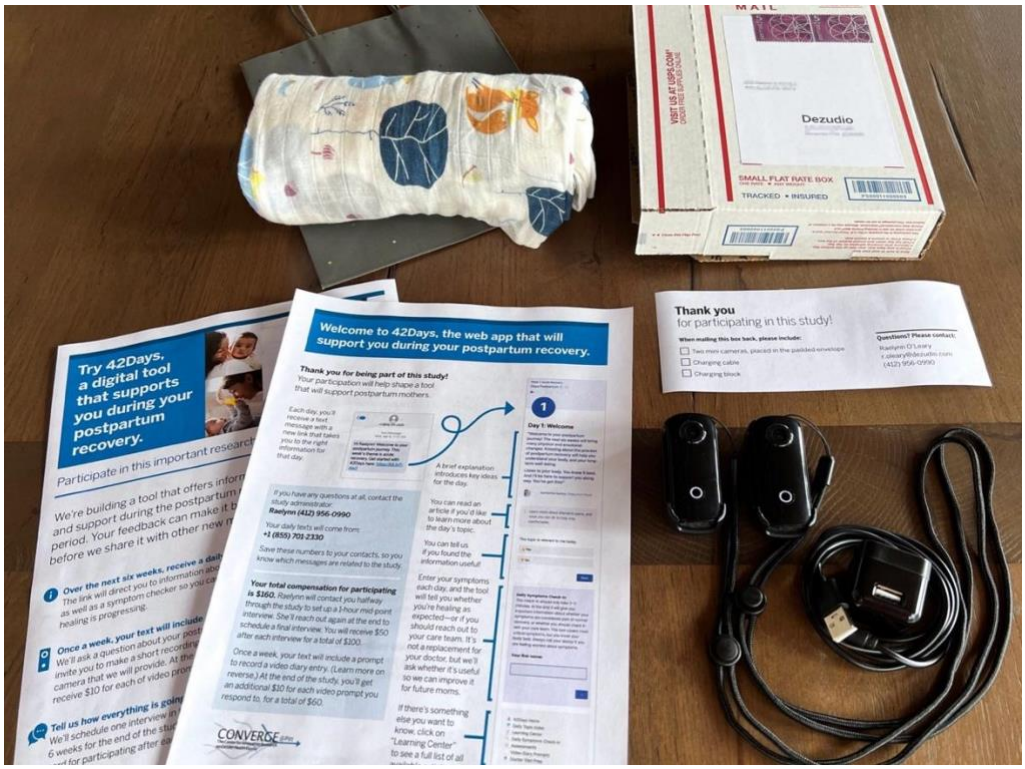

Figure 2: Study kits, which were provided to participants in the hospital within 1–2 days of delivery. The kits included a set of instructions, two cameras for the video diary, a swaddling blanket for the new baby, and a self-addressed mailer and instructions for mailing the kit back at the end of the study. Photograph © Raelynn O'Leary.

Because we had the goal of engaging with study participants for a relatively long period of time—over the course of six weeks—we felt that connecting with real members of the study team for recruiting, onboarding, and throughout would work better than using an online recruiting service and/or a digital research platform. Upon enrollment, participants were given contact information for the study liaison, and could expect to be contacted with study notifications (an initial welcome text went out to participants as soon as they were enrolled). The expectation was also set that participants could contact the study liaison via text or phone at any time over the course of their six-week participation. When it came time for each of the participants' two interviews, they received a text with a link to easily choose an hour time slot that worked well for them. Staying connected with participants but out of the way allowed us to build rapport and trust, while balancing the provision of a framework for genuine and authentic interactions throughout the postpartum period.

CONCLUSION

Engaging with new moms in depth by giving them the chance to experience and reflect on key aspects of using the app in the postpartum context allowed us to build a robust understanding of our participants and their needs. We learned details about how they might engage with the tool, and what they found valuable, that would not have been evident—to them, or to us—had we only interviewed them or described our ideas to them for feedback. For our team, this initiative underscored the importance of finding a way to make a version of what we might propose, and giving people the opportunity to use it in the most realistic and authentic circumstances possible. Even when the context or audience might present challenges, there are strategies for study design and for designing the participant experience that can help people be willing and motivated to remain involved. In this research initiative, prototyping the experience prior to fully committing to the concept enabled our interdisciplinary team of clinicians, designers, developers—and new moms who will remain engaged as part of a stakeholder team—to proceed with confidence as they continue the work of bringing the idea to fruition.

Even in circumstances where access to users feels limited or the topic area is high-stakes—like in the first six weeks after giving birth—we can lean on design research and experience prototyping to ensure that tools we build are aligned to the needs of the people they are intended to serve. New moms in the postpartum period are a population who can and should benefit from the design of tools and services that take this approach.

For many new moms in the U.S., navigating the postpartum period is a dance of caring for a new life while healing and recovering, with little information or support for yourself. We see potential for better digital tools to help combat our growing maternal mortality crisis. The outcomes of this research are currently being applied to the design and development of a postpartum support app, with plans for distribution broadly to new moms through state public health channels. This population needs designers and design researchers to understand their situation deeply and authentically, and to build tools that can help them navigate the friction they face.

ABOUT THE AUTHORS

Raelynn O'Leary is Partner and Co-founder of Dezudio, a women-owned design firm in Pittsburgh. Her practice is focused on research and design for decision making and support tools and communications, largely in the realm of women's reproductive health. Raelynn is Special Faculty in the School of Design at Carnegie Mellon University.

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Tamar Krishnamurti, PhD is an Assistant Professor of Medicine at the University of Pittsburgh. She works on issues at the intersection of health, risk, and technology, developing processes, (digital) tools, and communication strategies, grounded in psychological theory, to support informed decision making. Dr. Krishnamurti received the 2020 Kuno Award for Applied Science to develop mobile health strategies to address maternal morbidity and mortality risks.

NOTES

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Finally, our deepest thanks and recognition to the new moms who participated in interviews and diary studies and allowed us to see into their lives during this crucial time. Their willingness to share their experience will do much to help other new moms in the postpartum period and hopefully ultimately aid in the development of systems of support to tackle our maternal mortality crisis.

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Sustainability and Energy Transitions

Sustainability challenges every aspect of our skills and work as ethnographers: unpacking of complex systems, competing narratives of bounty and scarcity, wildly divergent interests and impacts, futuring, and behavior change, just to name a few. Presentations in this session use these frictions to make meaningful progress.

Discussant: Evan Hanover, *Director, Conifer Research*

Local Frictions in the Energy Transition

Design Anthropology for the Emergence of Energy Communities

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Working in an interdisciplinary consortium aiming to design an innovative smart energy system in Amsterdam, we report on frictions encountered in ethnographic fieldwork. These frictions pertain to the invisibility of energy infrastructure and the resulting lack of a relatable narrative, people's past experiences with public participation in the energy transition, and conflicting time horizons of long-term policy goals with people's short-term concerns. We reflect on the starting assumptions of the project in which this study is embedded, noting how the typical techno-economic framing of renewable energy projects inhibited the building of social connections and rapport within our fieldwork. Using a design anthropology approach, we describe how ethnographers can support the emergence of local energy communities and identify future directions to address the frictions identified. These directions include making energy systems more socially experienceable, design anthropologists mediating between people and institutions, and embedding ethnographic engagements in institutional structures to ensure continuity.

INTRODUCTION

By reporting on ongoing ethnographic fieldwork that we consider challenging and of limited success, this paper describes three frictions associated with the transition from fossil to renewable energy sources in The Netherlands, i.e., the Dutch energy transition. The authors collaborate in an ongoing energy innovation project in Amsterdam South-East, where the goal is to develop a "smart energy platform" that inclusively benefits the local community. Working in an interdisciplinary consortium with various partners, including electrical engineers, municipal representatives and the operator of the local electricity grid, our initial role was to design the user-facing part of the system using a human-centered design approach. In the paper, we describe the difficulties encountered during fieldwork in a diverse neighborhood with numerous socio-economic challenges, prevalent distrust towards institutions, and an 'overstudied' local population, leading us to question this initial assumption. From our experiences in the field, we generalize and identify three frictions for ethnographers working in energy transition projects.

The municipality of Amsterdam has set an ambitious target for a 55% CO_2 emissions reduction in 2030 (Municipality of Amsterdam 2020). This ambition is not without challenges, as energy poverty (defined as the lack of affordable and reliable access to energy supply and services) figures are rising (Municipality of Amsterdam 2022), and congestion in the electrical grid is threatening the reliable delivery of

power in the future. The authors' project has a dual purpose of addressing these challenges: firstly, to develop a smart, digital platform to incentivize local energy users to change their behavior to reduce congestion, and secondly, to ensure that the energy platform benefits residents in a local neighborhood in an inclusive manner, prioritizing the needs of marginalized and oft-overlooked social groups.

From the beginning, the authors brought a design anthropology approach to this project, intending to build trust and learn about local residents' needs to inform the design of the smart energy platform. As will become evident, the fieldwork revealed flawed assumptions within the project's approach, which reflect more significant and systemic frictions for the energy transition. We position these findings in a growing body of literature that explores the relevance of ethnography for energy studies and identifies future directions for ethnographers to address the frictions identified.

The first friction pertains to the lack of a relatable narrative around the social relevance of energy systems, resulting from the invisibility of energy infrastructure. Previous studies have explored aspects like the multisensory experience of domestic energy practices (Pink, 2012) or storytelling around energy systems (Moezzi, Janda, and Rotmann 2017), but we argue that the novel social relations that renewable energy systems enable should also be made experienceable. The second friction pertains to people's past experiences with public participation in the energy transition, which has led to an erosion of trust. Whilst ethnography is well positioned to understand and uncover people's judgments about past energy projects (Smith and High 2017), we argue that ethnographers should become active mediators and translators between people and institutions during the lengthy process of energy system innovation. Finally, we describe the frictions in the temporal mismatch between the long-term energy transition and short-term concerns of people. We argue that ethnographers should work to embed ethnographic engagements (Goodman 2018) in the functioning of local organizations to ensure continuity of collaborations beyond a single project whilst regularly making intermediate results of the long-term innovation process tangible and visible to participants.

CONTEXT: ENERGY PROSUMERS AND SMART GRIDS

The energy sector is highly technocratic, characterized by organizations and institutions invisible to the general public, who work to maintain the infrastructures that keep modern society running. In particular, the electricity grid is an esoteric architecture that is unintelligible to the average citizen, functioning through technical protocols operated by specialists in invisible control rooms using complex mathematical operations. However, research suggests this may change as more households install residential solar panels, own electric vehicles, and organize with their neighbors in energy communities or cooperatives (Koirala et al. 2016). Citizens will transform from passive energy consumers to pro-active prosumers who both produce and consume energy, actively participate and trade on local energy markets,

and adapt their energy practices based on techniques such as demand side response and dynamic energy tariffs (Calver and Simcock 2021). These changes are required to adapt to the dispersed and intermittent generation of renewable energy, which, unlike fossil fuel power plants, is distributed throughout the landscape and is uncontrollably dependent on weather conditions.

Furthermore, the electricity infrastructure itself is expected to undergo a fundamental transformation into a 'smart grid', using intelligent control mechanisms, weather forecasting algorithms, and digital platforms (Farhangi 2010). The social implications of these developments are yet underexplored, as people might have to adapt their domestic energy use patterns, use new technological innovations, and interact with novel organizations that take up new roles in so-called "smart local energy systems" (Ford et al. 2021). An increasing amount of research focuses on designing the user interaction with these systems, e.g., through smart meters or home energy management systems (Geelen, Reinders, and Keyson 2013).

The project in which we work is motivated by these developments, with the primary goal of designing an innovative smart energy platform. This platform would incentivize users to adapt their energy use patterns to alleviate the load on the local grid in return for financial compensation from the grid operator. Many of the project's partners and collaborators work to build the software and hardware required, with expected users being several large commercial parties with ownership over various energy assets (e.g., storage batteries and solar panels) and households from a local neighborhood. Besides technological development, there is also the question of social inclusion, which concerns the benefits for those households with the greatest need. Initially, it was assumed that those households might use the platform to make better use of their residential solar energy and potentially engage in practices like Peer-to-Peer (P2P) energy trading.

The households affected by the project are from a local neighborhood in Amsterdam South-East, a field site for our project. It is an incredibly diverse area, with around 70% of residents from a non-Western migration background. It also has considerable socioeconomic challenges, including energy poverty, little local economic activity, and a need for more social cohesion. The municipality of Amsterdam designated the area as a 'development neighborhood', signifying that the area needs extra attention from policymakers. We reflect that whilst it is important to report these, this can also have a stigmatizing effect on the residents.

The authors worked on the social inclusion side of the project, intending to learn about the needs of residents and formulate design requirements for the platform. From the beginning, there was a perceived gap between the smart energy platform and the likely needs of households, and the plan was to conduct early ethnographic field visits so that the findings might inform the engineering work, which was likely to proceed with or without the outcomes of our research. At the start, the project's technological, rationalist-economic framing was heavily emphasized compared to the

social dimension. To be able to provide a counterweight and input to these activities, our ethnographic fieldwork started with several intentions and assumptions:

12. to take the social needs, concerns, and values of citizens as a starting point, rather than the technology,

13. to avoid technical jargon as much as possible, and

14. to start with a focus on building rapport with local community centers and community leaders before focusing on the core research questions.

As the ethnographic vignettes in the next section will show, even these seemingly typical starts for ethnography proved to be arduous and intricate.

THREE VIGNETTES OF FAILURE

Urban Gardening

The first place I visited ("I", used in the vignettes, refers to the first author of the paper) was an urban gardening initiative that tailors specifically to local women and has the purpose of women's empowerment. The organization that manages the initiative operates multiple gardens in Amsterdam and is well known because of a documentary filmed about them some years ago. It seemed like a natural place to start, as people interested in gardening and greenery might have some affinity with the theme of sustainability, and thus also renewable energy. Several times a week, they organize a morning or afternoon where any local women can come to volunteer in the gardens, assisted by a garden coach who, in the process, helps women to find their personal power. Besides the potential connection with sustainability, their focus on empowering women from diverse cultural backgrounds aligned well with our interest in inclusivity, as there would be plenty of people to talk to who are not the 'usual suspects' in energy transition projects, i.e., older white Dutch men.

I decided to visit the garden on a Wednesday morning, which was open for volunteers to help. I was somewhat uncertain about my visit, as the place seemed intimate, and as a non-local male, I would certainly stand out and perhaps be unwelcome. Still, no women were in our research team, and we had to start somewhere. When I arrived at the garden, however, which was located in the courtyard of one of the characteristic, large apartment blocks, I was swiftly and warmly welcomed by the garden coach, who assured me that 'everyone was welcome'. She asked me why I was here and where I was from, as I was clearly not local. I explained that I was doing a research project related to energy and sustainability and that I was looking to speak to some people to learn more about the neighborhood, especially if there is anyone interested in renewable energy. The coach seemed a little unsure how to react. She was okay with it but didn't ask any more

questions. I felt that the fact I was a researcher created some distance between us, and it certainly did not serve to have more conversation. Still, she welcomed me to participate in the garden and help with their activities.

I worked in the garden for a few hours and interacted with the people there, mostly middle-aged women from Surinamese and other ethnic and cultural backgrounds. It was a warm environment of casual chit-chat and friendly banter – the Dutch word "gezellig" captures the atmosphere well. It did not seem appropriate to strike up a difficult conversation about research about energy transition or even ask them about other prevalent concerns in the area. Whilst it was a pleasant atmosphere and people made me feel at home, there was pressure on my mind to get the data and talk to people about energy. After all, I was not there for casual chit-chat but in my professional role of contributing to designing a smart energy platform. Still, ethnography takes time, and overall, it was a pleasant visit.

During another visit, I was having a cup of coffee with the group and met the founder of the initiative, who was curious to learn more about our research and purpose in the neighborhood. I explained that I was connected to the university, working on a research project in the area related to energy and inclusiveness. She was interested to in getting the details, so I explained about the smart energy platform that is developed nearby and how we were conducting ethnographic research to explore how this platform could serve the needs and interests of local citizens in an inclusive way. We were looking to get to know some people in the area, especially anyone interested in renewable energy, and I'd like to volunteer in the garden as a means of doing research and learning more about the area. The founder seemed hesitant and said there probably wasn't much to learn about energy from the people here. She further explained how researchers or students were visiting the area quite frequently. She asked me to email her with more information, and then she'd let us know.

We had some email exchanges, and a few weeks later, she communicated her decision: She would prefer us not to conduct our research in the garden, as it was intended to be a safe space for women. She didn't want anyone around who would be observing or studying people. Also, the fact that they have received quite a bit of public attention recently because of the documentary means that they must be quite selective in who they speak to. While she did not say it explicitly, we felt a mismatch between our interests and their activities: urban gardening is about social connection and participation within the local community, whereas our energy project was framed technically and informed by national and global concerns. The only connecting point is the intention of 'inclusivity', but there was no concrete idea of implementing this besides "we'd like to study and learn". Moreover, as a non-local male university researcher, I was somewhat out of place for an initiative focused on local women. If they get many requests from researchers and students to participate, then probably there'd be others with more relevant topics or who have more of a personal connection to the place.

Homework Supervision

Another place we'd learned about is a local community center that organizes homework supervision, other activities for local youth, and food bank services for homeless or unregistered people. We found various articles about them online and saw an interview with the founder on local television, who was considered a hero for the local community. It seemed like this place was central in some local, informal networks and that they knew a lot about the needs of people who were struggling to make ends meet. One afternoon, I visited the place and spoke to a woman I recognized as the founder who was interviewed on local television. I mentioned I was working on a research project and looking to learn more about the area and also about this particular initiative. She said: "oh I received a call from a student who wanted to visit us, is that you?" I said that that's not me. But it was striking that another student had contacted them to visit them at this same time.

She told me about their activities, about how they host after-school activities for kids, how the place is a second home for the children, and that many volunteers help her to do this: it's a real community place. She said they were a very central and trusted place for the people in the neighborhood. I mentioned that I was "working on a research project related to energy and exploring how the energy transition can connect more to the needs of people in this neighborhood and potentially help people dealing with energy poverty". She seemed appreciative but gave a neutral reaction, neither positive nor negative, and wished me good luck. Although the topic did not spark her interest, I felt that it could help that we wished to explore the needs of people dealing with energy poverty. I asked if I could visit them later if I had more questions, to which she said their door was always open. We exchanged contact details.

Later, I sent an email to ask if they needed help with anything mentioning that as part of doing our research, a graduate student and I would like to do volunteer work to give something back to the neighborhood. This way we could get started and get to know people. We got a positive reaction and were invited for a conversation. We spoke with several women who were in charge of the place, who were middle-aged and from various ethnic backgrounds, and they said they were happy with our proposal and explained that they could use help with homework supervision. They were curious to learn more about our research, and one of the women inquired: "how are you ever going to make the energy transition more inclusive?" She said it is a very difficult topic, and people don't know anything about it. She herself had just started looking into solar panels – the energy prices were very high as the Ukraine war just broke out – but most people are unaware of how to approach this or even start. We explained that our first step was to learn from residents' viewpoints, what they care about and need in this regard, and that we wanted to explore ways of making the topic more engaging and accessible.

They explained they were also working with a research team from another university to develop a 'wellness tracker' for the neighborhood. This tool measures

the level of well-being of the residents in terms and criteria that they find important. They explained that the wellness tracker project contributed to building social relations for the neighborhood, with the final outcome being interesting for anyone living in the area. We talked some more, and they said we could explore together how our project could also provide value like this. Still, they were skeptical about the 'smart energy platform' our project was developing: "if some old white guys come here 'to do energy transition,' it will generate a lot of distrust.", is the literal quote. They said clearly: "if you want to do research here, it has to bring something to the neighborhood". They also said that much research has been done in this area into issues like energy poverty, and people have become tired of talking to researchers about the problems they deal with daily. "We, and the municipality, know well enough what the problems are, we don't need more research. We need real solutions now."

Despite these doubts, they still welcomed our help with homework supervision, which we participated in a few weeks later. Unfortunately, the week afterward, the roof of the community center building collapsed, and homework supervision was suspended indefinitely, meaning we couldn't visit anymore. Reflecting on these visits, we were thinking: what do we offer this community? The wellness tracker they are developing with the other researchers is something tangible and interesting to anyone living in the neighborhood. At the same time, the smart energy platform from our project is something complex and technical, and the initial framing was aimed at people with at least access to solar panels, which we had learned were not even present in this area. How could this ever be made inclusive and interesting? Of course, we could hold a workshop or co-creation session on a theme like saving energy and providing a meal or gift card to participants, but this would not actually help to make the smart energy platform that we were developing inclusive while there is public funding going into this project for that specific purpose. While we had more email contact with this community center, our collaboration never fully got off the ground. We felt this was largely because of our project's perceived lack of usefulness and relevance to the local community.

Coffee Hour

The third community center I visited organized various events for the community, including coffee hour, yoga, bible reading for children, and more. Together with a graduate student, I decided to visit during one of the coffee hours on a Thursday morning, assuming it was open for anyone to visit – the available information suggested as much. We arrived at the place, a bit nervous from the previous experiences and unsure what the best approach would be, but we hoped to strike up a conversation with whoever was there. We decided to be very sparing with information and details about our research unless people asked for it, and we would try to listen and show interest in the people who were present. When we arrived, we

did not see anyone at the entrance and were unsure how to proceed. We decided to enter and cautiously went down the hallway, looking for someone to speak to. Not seeing anyone, we proceeded and entered a large room where the coffee hour was happening. About 15-20 people sat around the room, keeping social distance according to the COVID-19 regulations that were still in place. Mostly, they were middle-aged and elderly women of various ethnic backgrounds engaged in conversation.

We approached one woman who was pouring coffee and seemed to be in charge. We mentioned we were involved in a research project and wanted to learn more about the neighborhood, and we asked if we could sit down and hang around. Beforehand, we had explicitly decided not to mention energy transition right away as it hadn't been a very successful topic to talk to people about. She seemed unsure and suspicious and asked what our research was about, to which we explained that "we were curious to learn how local residents think about renewable energy," especially concerns related to the high energy prices at the moment. This did not satisfy her, and she asked very pointed and specific questions: "OK, but which organization are you connected to? How is this project funded?" We explained that we were connected to a larger research project that was related to the congestion of the electricity grid and that we were exploring how it could be done in an inclusive way. She seemed hesitant but said: "okay, you can sit down and listen, but don't expect people to want to talk about energy."

We sat down on one of the benches off the side. Because of the social distancing setup, we could not speak with many people, except one elderly lady who started chatting immediately with one of us. The other ethnographer sat somewhat awkwardly off the side of the bench, unable to join the conversation and out of speaking distance of anyone else, and so simply hung out and listened to what people were talking about. This continued for some minutes until a lady at the other side of the room exclaimed: "Who are these people, and why are they here? They didn't even introduce themselves!" She yelled quite loudly, and this caused some upheaval. Some others said, "it's okay, everyone is welcome." We hastily stood up, introduced ourselves, and mentioned why we were here. This calmed people down, but there was still tension in the room. We were unsure what to do from here, if we were welcome or not. After a few minutes, we decided to leave – we said goodbye, thanks for letting us in, and that we would leave now. Overall, we felt that our presence was intrusive, and we were not familiar with the social norms and what would be expected of us. It seemed like a more private space than we expected, and to talk about anything formal or impersonal felt wrong and off, yet we still had to do this to explain who we were, what we were doing, and why we were there.

After we left the place, a woman came running after us and urged us to wait. We had not seen her inside before. She told us she was the organizer, and very quickly apologized and said everyone was welcome. She explained she hadn't seen us come in; usually, she was at the entrance to welcome people, but she was away for a few

minutes. She emphasized that we were always welcome and could always contact her and wished us the best of luck in our research. She reassured us, but we still realized that we had not found the right approach to speak to people. We felt that we lacked an explanation, story, or narrative about the activities and intentions of our project in meaningful human language instead of technical jargon to explain why we were in this area and what we wanted to learn from people.

FRICTIONS FOR ETHNOGRAPHY IN THE ENERGY TRANSITION

This section highlights frictions for research and innovation in renewable energy – particularly for emerging smart energy systems. Moving beyond the specific aspects of our case, we interpret the general implications of these findings, connecting them to literature and theory.

Friction 1: The Invisibility of Energy Infrastructure and Lack of a Relatable Narrative

The vignettes illustrate the lack of a meaningful explanation about the nature and relevance of the smart energy project, which meant that our presence and interest had to be explained in technical jargon that was far removed from the daily lives of our participants. The story of the energy transition is one of rising CO2 levels, technological innovation, and complex bottlenecks like grid congestion. The vignettes illustrate how this framing had little effect on the building of rapport or even inhibited it. Terms like 'energy transition', 'smart energy platform', and 'grid congestion' did not serve the purpose of making connections and building rapport, yet were indispensable in explaining our presence. We argue that this is because of people's traditional role as passive energy consumers, leaving the management of the system to technocratic organizations and experts. In general, people do not experience energy infrastructures as part of their social environment, apart from engaging in energy consumption within households, resulting in a lack of human-centered understanding of the functioning of the energy infrastructures.

Various academic studies have pointed out how the invisibility of energy infrastructure contributes to a lack of awareness around sustainable energy use and proactive engagement with energy practices (Pink 2012; Broms, Wangel, and Andersson 2017). Making these processes more visible, tangible, and meaningful is commonly seen as a necessary step in raising awareness and promoting sustainable behavior – e.g., through storytelling (Moezzi, Janda, and Rotmann 2017). This step is even more important considering that energy infrastructures are closely intertwined with institutions of governance and processes of political power (Boyer 2014) and can be mobilized to produce new forms of citizenship (Larkin 2013). Meaningfully opening up the black box of energy infrastructures is thus important not only for promoting sustainable behavior but also for enabling democratic accountability and creating insight into the social relations that energy infrastructures enable. This latter

aspect is even more true for emerging smart energy systems, which can enable new forms of community organization and social engagements.

Our findings show the lack of a relatable narrative around the relevance of innovative renewable energy systems that connect with the lived experience of people. This forms a barrier not only towards spreading awareness of sustainable behavior but also the emergence of new forms of community organization and social relations around smart energy systems. Our findings problematize the common assumption that people are interested in co-shaping their future role as 'proactive energy citizens' and show a 'chicken-and-egg' problem: the goal is to design an energy system in a way that is meaningful, tangible, and sociable to members of the most difficult-to-reach social groups, but to do so, the purpose of our research should be explained in a manner that is meaningful, tangible, and sociable to the participants.

Friction 2: Past Experiences of Public Participation in the Energy Transition

The second friction relates to how participatory projects in the energy transition are often organized and how citizens perceive the value of this participation. In a context like The Netherlands (but also in other places), there is a history of public participation in the energy transition, typically organized top-down. An example is the placement of wind turbines, where the municipality invites the local community to co-decide on a location. Too often, people have felt that their concerns were not sufficiently heard and considered, leading to a certain "participation fatigue", as one of our participants expressed. Another person reported that the experience felt like "putting a post-it on a moving train". In other words, people felt that the outcomes and direction of certain projects were already pre-determined by institutional officials, with limited space for real input from citizens. These concerns are well known and identified in academic literature, e.g., through analyses of how the 'public' is conceived, imagined, and constructed in a participatory process, thereby structuring the interactions and engagements in a certain way (Sovacool et al. 2020; Chilvers and Longhurst 2016). While the intention may be to enable citizens to participate in institutional decision-making meaningfully, real delegation of power is not guaranteed (Arnstein 1969).

During our fieldwork, we experienced how the energy transition is associated with troublesome projects in the past. When we mentioned our work in the energy transition to one man on the street, he exclaimed, "Ugh, don't start to tell me about it!" and proceeded to describe how the municipality retrofitted his apartment building with a new heating system, which led to higher energy bills – whereas the opposite was promised. This association hampered our ability to blend in and build relations, as people did not trust that participating in our energy-related research would lead to any useful or interesting outcomes.

Initially, we hoped that our ethnographic approach would avoid some of the problems associated with the more traditional approach. As it turned out, the

participation fatigue of people in this area pertained not only to projects initiated by the government but also to the presence of researchers and universities – a novel finding. One person expressed to us the concern that frequently researchers have come "to ask people about their poverty," which is a stigmatizing frame. Another response was, "so much research has been done on the problems, people are tired of talking about it. What we need now are solutions". It thus became clear that people in this area have been asked the same question multiple times, over and over, by different researchers, students, or professionals working at different institutions, unaware of each other's activities. It struck us that many people we spoke to were familiar with researchers visiting, which had resulted in skepticism regarding their activities and intentions. Overall, we found that participatory research

We interpret this as an experienced lack of reciprocity, where researchers come into the area to gather data to advance their research and meet their institutional requirements without 'giving back' to the community. In this way, well-intentioned research can result in a form of *data extractivism*. We reflect that it is important for ethnographers to consider their embeddedness in institutional structures and activities and what purpose their activities serve. In our project, while as ethnographers we work for real and meaningful involvement of people, the institutional structure merely requires a justification of the requirement of inclusiveness, and pushes to do this as efficiently as possible. As ethnographers, we still deal with this fundamental tension where research or participatory processes are initiated from the top down. We are accountable to the institutional structures within which we operate, which tend to depoliticize controversies and operate in a technocratic manner (Turnhout et al. 2020). These institutional interests might be only partly congruent, or even adverse, to those of the people we engage with in our fieldwork.

Friction 3: Temporal Mismatch in Energy Infrastructure Innovation

The third friction concerns the tension between three different, conflicting time horizons that play out in our research: 1) the tempo of long-term energy transition innovation, a more or less linear process stretching several decades into the future; 2) the procedural, technocratic organization of multi-year R&D projects through deadlines and deliverables; 3) the daily, weekly, monthly routines of the average person. We argue that these need to be adequately attuned – participatory and ethnographic engagements should stretch beyond the scope of a single project, and people should be able to meet their short-term needs while participating in long-running projects.

Starting with the first-time horizon, policy goals of CO_2 reduction for 2030 and 2050 create the need for a long-term perspective yet urgent initiation of innovation in infrastructural solutions. This means that results from current research might only become concrete and tangible many years from now. This long-term perspective fits well with a practice of slow ethnography and organic building of connections, in

contrast with the common necessity to conduct short field trips and deliver quick, actionable results. During this research, however, we experienced how the time horizon of our project still created the urgency to engage residents early to meet deadlines and match the pace of the engineering work.

As mentioned, our fieldwork was conducted in an interdisciplinary innovation project, with designer-anthropologists working with electrical engineers, civil servants, and social scientists. It was emphasized in the beginning that any relevant user-related insights would have to come quickly and early since much of the 'design' of the smart energy platform was already laid out, and construction of the relevant hardware and software components had to begin as soon as possible. The engineering work could not afford to wait many months for the ethnographic fieldwork to unfold slowly and organically and yield relevant data. This is surely recognizable for ethnographers working in industry or other contexts. However, we argue that the need for a long-term perspective and a slow approach is especially important in energy transition work. Since energy transition projects take a long time to implement, are often bound to a single location, and are a locus of political controversies, the risks are higher that social relations between citizens and institutions are damaged permanently, more so than in commercial product development. We argue that an ethnographic engagement in a particular area should stretch well beyond the scope of a single project and attune to the lengthy process of transforming the local energy system and infrastructure.

Another tension concerns the mismatch between this long-time horizon and the work routines and rhythms of the average person. When initiating an ethnographic engagement around a specific energy system, a significant challenge concerns articulating the relevance, nature, and impact of something that will not exist for a long time. This further underscores the need for a relatable narrative, as in the first friction, and the prioritization of reciprocal relations, as in the second friction. From our fieldwork, several participants responded how they do not have the time to invest in our research, using phrasings like "no time to worry about this", or "too busy with getting food on the table".

DESIGN ANTHROPOLOGY FOR THE EMERGENCE OF ENERGY COMMUNITIES

Building on the frictions described above, this section elaborates on potential pathways for mitigating them. We do this by elaborating on our design anthropology approach, exploring how ethnographers, researchers, or other professionals could intervene and work for structural solutions to these frictions. We briefly introduce our interventionist approach, describe how we facilitate the emergence of a local energy community in our research area, and interpret how this can address the frictions identified.

Our design anthropology approach is characterized by an intentional and reflexive stance concerning intervention. We believe ethnographers cannot be a fly on the wall, observing and mingling with their research participants without co-shaping the situation and events. Seen in this light, ethnography is also an intervention, especially in non-public spaces such as those visited during this project. Besides participatory ethnography, designer anthropologists use design interventions to conduct experiments and obtain an understanding of emerging sociocultural phenomena (Singh et al. 2021). Approaching these interventions with a reflexive attitude, a core principle guiding our approach is to consider "the moral implications of intervention" (Murphy 2016). Both ethnography and other design interventions are enacted with a certain intentionality and by a certain design, with certain potential outcomes in mind. An intervention is a means of 'giving form' (Murphy, 2021) to a context, thereby co-shaping how the rightness or wrongness of an action is considered. Our findings show how our ethnographic visits (i.e., the interventions) give rise to questions about the right- or wrongness of the visits themselves, the legitimacy of our presence in non-public spaces, the assumptions and purposes of our project, and reciprocity between ethnographers and research participants. An interventionist approach is bound to magnify and produce frictions and tensions, but we argue that ethnographers should take ownership of their interventions and the resulting consequences.

In the context of energy transitions, a key question becomes: what should be the role of top-down actors, if any, to intervene in local contexts to support, facilitate, or push the idea of an energy community? Energy communities are a recognized energy system entity in European Union policy. They can be loosely defined as citizen or community initiatives that adopt collective ownership and management over local renewable energy assets or systems. While energy communities are typically characterized by bottom-up actions and initiatives from citizens (Bauwens et al. 2022), the imperative of a just energy transition means that institutional guidance and involvement might be necessary. After all, bottom-up initiatives are not getting off the ground in areas like the neighborhood of our fieldwork, even though they are seen as a key avenue for residents and communities to participate and benefit.

We argue that a middle-of-the-way approach, where ethnographers enter a local context to establish long-term partnerships with citizens, provides added value. This includes not only relations between ethnographers and their informants but also ethnographers working as mediators and translators to establish relations between citizens and institutions. The slow building of rapport, the organic unfolding of social networks and connections while learning about the prevalent local customs and concerns, and reflecting on one's approach and embeddedness in the institutional context ameliorates the risks associated with either fully bottom-up or top-down action. Building social connections through informal engagements can subvert the coldness, impersonal nature, and rigidity of traditional, top-down, institutionalized participation. On the other hand, citizens or communities in

underprivileged contexts stand to benefit from the support that collaboration with professional organizations can provide.

To implement this in our research, we are collaborating with a local organization that represents local residents and supports local energy initiatives. Through this organization, which is part of our project consortium, we are connecting to a select group of interested local residents engaged with the energy transition topic. In a series of co-creative brainstorming sessions, we are exploring with these residents if, how, and under what conditions a local energy community could be established. Among other things, this community would take ownership of installing solar panels on the local apartment buildings and ensure a fair distribution of the benefits for all residents. While it is the intention that the local community will fully take ownership and responsibility, our role is to provide practical support by organizing co-creation sessions, providing pointers for discussion, and assisting in formalizing the idea. This would allow us to build long-term partnerships between us, local organizations, the newly founded energy community, and externally partnered institutions. The local organization can become an opportunity to explore citizen ethnography (Badami and Goodman 2021). While the initiative was started from the top-down, it appears as a promising avenue for a local energy community to emerge in a place where it otherwise would not have.

This pertains to another key concept in our design anthropology approach – emergence. There is a creative tension between the future orientation of design and the anthropological interest in understanding the past and present (Otto and Smith 2013; Singh 2019). Design anthropology has the conceptual tools to study empirical sociocultural phenomena and consider what kind of future social and material arrangements are emerging in a dialectical manner. This could include the emergence of new types of energy communities through the collaboration between ethnographers and residents. Such collaborations would ideally serve various purposes: supporting citizen-led energy initiatives, contributing to a just energy transition, and generating transformative academic knowledge through action (Otto and Smith 2013; Singh et al. 2021). Design anthropology as an approach seems well-positioned to contribute to these purposes.

Finally, we provide several concrete pointers and directions for how our proposed design anthropology approach can address the three frictions identified. While we only briefly indicate these directions, which we intend to explore in-depth in our future research.

1. The Invisibility of Energy Infrastructure and Lack of a Relatable Narrative

Designer anthropologists can conduct interventions to make invisible energy systems more tangible. Through design experiments and ethnographic fieldwork, in a similar fashion as (Pink et al. 2020), the meanings that people associate with renewable energy systems may be studied and mobilized to reframe techno-economic understandings of smart renewable energy systems. By supporting and

collaborating with residents to establish an energy community, designer anthropologists may pay attention to what tensions, frictions, and controversies are emerging to explore how the social dimension of energy systems may be made tangible and experienceable through design interventions.

2. Past Experiences of Public Participation in the Energy Transition

Ethnography as a means of building informal connections and trust is better positioned than traditional top-down participatory methods in the energy transition. Still, to deal with our challenges, the issue of reciprocity and the value of participation should become an even greater priority for ethnographers. To this end, it might be necessary for ethnographers to become more activist and intervene not only in the local context but within the institutional context itself (Levin 2019). Ethnographers should become mediators and translators on behalf of people and sensitize institutional structures and officials to their needs and perspectives. This could involve advocating monetary compensation for participants to enable them to collaborate with professionals on equal grounds. By contributing to building long-term partnerships, ethnographic practice can become embedded in local organizations.

3. Temporal Mismatch of Energy Infrastructure Innovation

Renewable energy innovation initiatives aiming to involve citizens for the long term should ensure continuity of social relations and collaborations, taking an infrastructural perspective (Mendonca 2022). As indicated above, it might be necessary for designer anthropologists to become more activist and intervene within the institutional context to advocate for structural changes. Such structural changes include institutionalizing the need for slow ethnography and embedding ethnographic relations in local organizations. Furthermore, to cater to the short-term needs of the average person, it is crucial to provide regular updates, outputs, and results of the innovation process in a meaningful and understandable form for the common public. This fosters a sense of progression, which is crucial to retain support and engagement for the long term.

CONCLUSION

Smart energy systems are expected to play an essential role in energy transitions. However, our ethnographic fieldwork shows how the framing and understanding of these innovations constitute a barrier for people – not only to adopting new energy technologies but also to their participation in ethnographic research. Our findings show the necessity for ethnographers to reflect on the institutional structures within which they operate and how ethnographic engagements enact not only the encounter between two people but also between institutions and citizens. We highlight the lack of relatable narratives and socially experienceable implications of smart energy

systems, the perceived lack of value of public participation in the energy transition, and the conflicting temporalities of long-term innovation and present needs. Using a design anthropology approach, we highlight how ethnographers can mediate between institutions and local groups to support the emergence of energy communities. We argue that ethnographers working in energy transitions should advocate for embedding ethnographic practice in local organizations to ensure continuity of social relations and collaborations, acting as mediators and translators in the process.

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Introducing Ethnographic Practice to a 100-Year-Old Corporation in a Highly Regulated Industry

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Our work in the Gulf South faces challenges and opportunities. Climate change impacts are severe, yet residents' awareness lags behind the US as a whole. The region encompasses impoverished communities, vibrant urban centers, farms, and a rich culture. To better understand the people of the region and to guide our product strategy, we--on the strategic design team--use ethnographic methods and systems thinking. Organizational skillsets and the pandemic posed obstacles. Ethnographic research shaped a digital tool for low-to-moderate income individuals to access energy assistance. We adopted co-creation, involving stakeholders and considering customers as part of a larger system. The revised process led to a company-wide working group and an Innovation Playbook. We successfully launched a streamlined digital application for energy assistance and backup power solutions for larger customers. We acknowledge frictions as part of the innovation process.

Keywords: ethnography, energy, utilities, innovation, Gulf States, climate change

OVERVIEW

There were three main organizational and business impacts of our work as strategic designers using ethnographic research within an innovation department of a large 100-year-old corporation in the highly regulated utility industry: the co-creation of products, the development of an Innovation Playbook, and, finally, the commercialization of products. This included Power Through, a backup-generator service that is currently offered to commercial and industrial customers in Louisiana, and an Arkansas pilot for a digital application that allows customers living on low incomes to apply for assistance with their utility bills through LIHEAP, a federal program. This paper describes how we achieved these outcomes using ethnographic research, which played a critical role in helping us to better understand our customers and their needs regarding energy-related products and services.

THE CONTEXT

The Gulf South has both frictions and opportunities that shaped our ethnographic practice. One such friction is the various impacts of climate change, one of the most pressing problem facing our world today (Lang, 2008). The impacts of climate change are becoming more severe in our region (Langford, C. 2022), yet residents' attitudes about the severity of climate change lag behind the rest of the nation (Howe, P. et al., 2015). The region is composed of vast swaths of impoverished communities (Hoopes, S. et al., 2020), a few dynamic urban hubs, rural

farms, commercial and industrial businesses, and a very influential and well-known musical and food culture.

OUR DISCIPLINE

In this complex context, our innovation department--with a small strategic design cohort--began work to better understand the people of the region (which includes Arkansas, Mississippi, Louisiana, and Texas) so we could inform the strategy and design of digital products and in-person services related to energy. As our innovation lab is located within a utility company, we are focused on energy in general, including a focus on people living on low and moderate incomes.

Within the broad area of energy-related frictions, we uncovered concerns unique to our customer population after conducting ethnographic research over the course of several years. We were guided by ethnographic methods and systems theory (Cabrera, D. and Cabrera, L., 2018). Ethnography and systems theory remain critical to how we understand our customers. Some of the energy-related concerns of customers in our region were uncovered using ethnographic techniques such as in-person interviews, site visits, and online interviews. Their concerns include resiliency in the face of storms and affordable access to power.

As strategic designers and ethnographic researchers, we had to go beyond strategic design (Ackermann, R., 2023), to focus on our customers as part of a larger system, which included our company. We, therefore, revised our innovation and research processes to further include the impact of our research and design work on the business, as well as to co-create products and services more systematically with our colleagues and customers. We've also sharpened our focus relative to customers, reflecting that in order to be successful and ultimately get products in the hands of our customers, we must also solve for our operating companies and regulators in the product development process.

OUR FRICTIONS

Organizational Skillsets

One of the main frictions we faced was at the organizational level. Strategic design was a new discipline to our company and the use of ethnographic research as part of the strategic design process was also new. Therefore, we slowly introduced key tenets of strategic design to the company. For example, by holding design thinking workshops with our colleagues outside of the innovation lab.

Beginning in 2020, the strategic design cohort began facilitating a series of internal design thinking workshops which had the following components:

- Defining design thinking
- Sharing case studies from prominent design leaders

- Defining empathy
- An overview of how design thinking is applied at our innovation lab
- A hands-on component where workshop participants break into small teams and gather insights, ideate, test prototypes, and present to their peers in a fast-paced, one-hour session

Our colleagues reacted positively to the design thinking workshops, as well as other strategy sessions, ideation exercises, and research share-outs.

The Pandemic

In 2020, due to the global COVID-19 pandemic, we had to adjust the way we conducted ethnographic research to include a variety of digital tools to help us interview, communicate with, understand, and co-create with both our customers and our colleagues.

For instance, during the pandemic the bulk of our customer interviews were conducted online using various videoconferencing and UX research platforms.

In those instances where we conducted in-person interviews and observational research, we followed CDC guidelines and were masked during our interactions with our customers and other stakeholders.

The switch to mostly online research and digital tools affected both what we were able to learn and what we were unable to learn. Thanks to online interviews, we were able to reach more customers and to complete studies in less time, as compared with travel to several locations and homes, something we did in 2019. It was also useful to safely discuss product concepts with residential and business customers in their milieux. We saw their homes and offices, albeit virtually. However, we were not able to have access to their larger contexts. For instance, we did not see the outside of residents' homes or their neighborhoods in real-time and we were not able to walk the factory floors with operations leads in-person. The in-the-moment serendipitous insights and question areas that can occur during in-person interactions were less likely to happen online, although they sometimes did.

OUR RESEARCH

In this paper, we detail two ethnographic research efforts we led that focused on two aspects of energy usage in the Gulf South. The first was the research we conducted to develop a backup power service and the second was on the research we undertook to understand customers living on low incomes that guided the development of a digital application for energy assistance.

Research to Guide the Design of a Backup Power Service

We conducted ethnographic research that guided the design of a back-up power service product for commercial and industrial customers known as "Power Through." Two main types of research were conducted:

- Commercial and industrial customer site visits were conducted in 2019 to assess the need for backup power generation where generators are required in case of power outages, due to the nature of the populations served (e.g., nursing homes).
- Interviews with generator experts (working at companies that sell and manufacture commercial generators) were also conducted in 2019.

As a result of our customer interviews and site visits, we found the following twelve steps that generator end users and manufacturers/sellers progress through during the life of a backup generator:

Figure 1. The twelve steps to generator installation.

Our research also revealed several communication touch points along the journey between users and manufacturers/sellers as summarized in the following graphic.

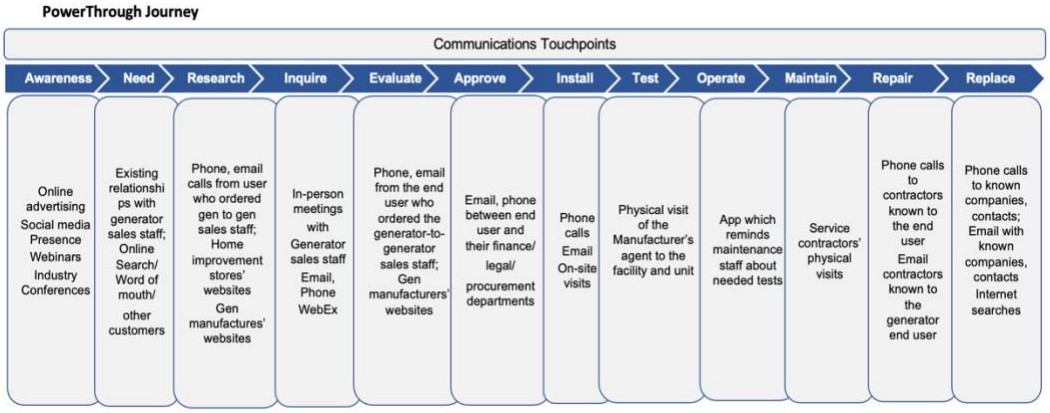

Figure 2. Communications touchpoints along the generator installation journey.

Ethnographic research also enabled us to uncover several customer frictions along the journey between users and manufacturers/sellers.

Educating potential customers about the need for a back-up generator is needed. One potential customer stated:

> "It's more of an emotional thing. It can be fruitful; people will respond to in a different way. Any large-scale purchase, there can be an emotional component. A level of trust and comfortability. Knowing that someone is going to be there if something happens. The price and the numbers don't mean as much when all those things are there. There's an emotional attachment to losing power—loss of business, loss of product, may have to lay people off. You want to have trust that if something happens, you will have back-up power. Knowing that I am secure, and I am not going to be exposed again."

Some end users believe an off-the-shelf generator will suffice for their needs. However, generators not intended for the size of the building they are powering (e.g., an entire grocery store) may not work well. As one generator manufacturer stated:

> "Continuing education is needed to build a value statement to them. 200KW generator for $45K on the internet is not good enough for business/commercial use, it's $75K for 200KW."

The end user sometimes views generators as cost-prohibitive, which is why financing a generator is useful to many customers.

> "Usually the acquisition of equipment—capital expenditures, the losses from outages are operating expenses… For example, in a molding business, they cannot lose even 10 minutes of power, they will have to throw out an entire line of misshapen products, that could be $30K… Grocery stores are the easiest, they lose food if the power goes out. We have cooling facility client, and they must keep flowers cool and medicines for their clients, they cannot lose power."

Generator rental companies also require consideration. If a business owner believes they can easily rent a generator when needed, they may not want to purchase a permanent standby generator of their own. The process for purchasing and installing a permanent standby generator is lengthy, which can be frustrating to those used to renting a generator and getting one on-site soon after their order. "The entire process takes 6-10 months for a 400 kw to 2-megawatt installation. Construction alone is one month."

Sales teams may be unknown to end users who do not want to make a major purchase from a stranger. However, end users may not know where to start when they need to replace old generators. A company that has been in business for over a hundred years may have the advantage of being known to customers in the region.

Understanding and evaluating generator options is difficult for non-experts. Internal staff is relied upon to assess generators and they may not have expertise to do so. Staff responsible for purchasing generators may come from managerial/procurement backgrounds and not have the engineering or maintenance training needed. For instance, an Executive Director of a nursing home told us there are "challenges" related to beginning the process of ordering a new generator. The

staff does not have the information needed to give the companies the specs needed to bid on a new generator (e.g., where to find out how much voltage is needed, what are the roles of the two meters the current generator has?). This is another pain point the Power Through product helps to solve.

> "There are all types of generators. There are those that keep the lights on, those that power the refrigerators, etc. Considering our area, you can have 4 or 5 category storms coming through our way. Just because we've never had one, doesn't mean we won't have a hurricane in the morning. You don't build a church for Easter Sunday either," as one grocery store owner stated.

There are other operational frictions that we may be able to advise on, and not solve right away. For instance, the storage of generator fuel supply is an issue if there is not enough space on the customer's property to safely do so. Additionally, in many medium-sized companies, paper logs are used to document all operational tests and required generator inspections. This is a cumbersome process for those who maintain generators. Digitizing the required forms would help, however, the company has to be open to changing the way they document and store the required information.

Finally, our interviews and site visits informed the development of a customer journey map that guided the design of our generator service, including how we communicated with customers. Building on initial research done by the team, product team members conducted in person and onsite qualitative interviews with generator end users and manufacturers to ascertain their frictions. We built a customer journey that represented the front-end process through which businesses acquire back-up generators, and a perspective from backstage, the vendors' point of view. The research informed our product strategy, resulting in revised customer journeys, and recommendations for Power Through as a business.

Research to Guide the Design of a Digital Application

We also conducted ethnographic research that shaped a digital tool that helps low-to-moderate income customers apply for energy assistance through the U.S. federal Low-Income Heat and Energy Assistance Program (LIHEAP).

Because the product team was composed of energy professionals from a variety of backgrounds (software engineers, product managers, analysts, and innovation managers) who assisted in the research, the strategic designers created a Field Interview Guide, which included a Notetaking Guide, a Synthesis Guide, and dos and don'ts of observational research. The guides were informed by tenets of observational research, active listening, and other qualitative research methodologies.

The following two quotes from Randall, D. and Rouncefield, M. (2014) guided our thinking around the role of ethnographers. These were shared with our team as part of the Field Interview Guide:

> "The important thing about the ethnographer is not that he or she brings particularly arcane skills to the collection of data [many of those are the skills of office administration, cataloguing and classifying documents and records], but that they bring the *willingness* to pay attention to people's activities, to attend in detail to how people actually go about their affairs...
>
> "The ethnographer's job is to listen to the talk, watch what happens, see what people do, to write it down,… record what documents can be recorded, and so on. The sorts of things that can be collected and recorded include conversations, descriptions of activities, diagrams of places, job descriptions, memos, notices, graffiti, transcripts of meetings, war stories, and more. It is not that such materials have any intrinsic value; the material is valuable insofar as it can be made relevant or useful for what it can say about the social organization of activities."

Our research to inform the development of the LIHEAP digital application included the following types of ethnographic research:

- In-person interviews with social service agencies staff at their offices in three states (Arkansas, Louisiana, and Mississippi) during the pandemic
- Virtual interviews with some social service agency staff who could not meet in-person
- Online interviews with LIHEAP users
- A telephone interview with a professor whose expertise includes LIHEAP

During in-person meetings with caseworkers, the majority expressed relief upon learning about the potential implementation of a digital approach. They saw the platform as a means to streamline their customer service and enhance efficiency. On the other hand, those who were engaged virtually encountered significant knowledge gaps in utilizing technology that allowed us to conduct the interviews. Their lack of familiarity with virtual tools often led to scheduled 30-minute interviews stretching to a lengthy 2-hour duration.

The main learnings from the three stakeholder groups we spoke with (agency clients, agency staff, and the LIHEAP expert) were:

Issues with receiving documents needed for the LIHEAP application

- Customers may not bring all the documents for eligibility requirements, including Social Security cards for everyone in their household, IDs, proof of income, and more. For example, many of the required documents are unknown to customers and not disclosed by the agency at the time of application. Several days may pass before a customer's application is returned, citing 'missing documents,' with little explanation on where or how to retrieve them.

- The pandemic ushered in a new era of the acceptance of documents not submitted in-person (via email and mail). For example, caseworkers relied on email to receive the applications of customers, but postal mail to respond.
- Manual calculation of utility assistance, housing payments, and other information that could be automated. Caseworkers were using a portal to check the status of an application then the state policy book to manually calculate the pledge each applicant was qualified for.
- Making paper copies of all documentation and keeping it in hard paper files. "It's hard to keep up with all the paperwork, especially during the busy season. We have to bring in extra help to keep it all organized," stated a caseworker.
- Cost of postage is a concern. After April 2020 and due to Covid-19 protocols, most agencies spent more on postage than in prior years.
- Applicants spend too much money traveling to and from the office to hand in required documents. "One applicant ran out of gas in the (agency) parking lot. The security guard shared his gas with the applicant, but it wasn't enough. He followed the applicant to the gas station to make sure the applicant had enough gas to go home," stated a caseworker.

Solutions suggested by social services staff:

- Online applications to speed up the process and save the customers from having to visit multiple locations to obtain their documents.
- Younger clients want more automation. Don't want to take off work or lunch break or bring their children to fill out application. Would help cut down on making copies. Automation could scan documents to the application.
- The application process could be made more efficient through technology. Electronic signature programs, for example. Some agencies use DocuSign to sign all the forms for the eligibility process and it is working well.
- Agencies want to have the technology to allow people to securely email/send their application documents because they are processing all applications outdoors.
- Other agencies are using Front Desk, an automated appointment scheduler.
- Biggest recommendation is to provide young adults and children with financial literacy.
- Loves idea of leveraging Head Start for automatic eligibility (e.g., enrolling eligible persons into the program without an application).
- Communication issues:
- Problem with people not showing up for appointments.

- Clients' phone numbers change often, so it's hard to get back in touch with people.
- Some clients do not know LIHEAP exists. Social service agencies like to advertise LIHEAP; however, their budgets may not allow them to do so.

Other systemic issues:

Our research also surfaced other issues that may not be solved by the utility or any one agency on its own. Those issues, however, are part of the larger system affecting applicants, and they include the following:

We identified a range of interconnected challenges within the system that impact applicants seeking assistance. These issues extend beyond the purview of any single utility or agency, necessitating a collaborative approach. Social service agency staff expressed a desire to proactively assist individuals with overdue utility bills, aiming to prevent disconnections. They also were seeking to improve visibility into clients' recent utility bills to facilitate qualification for LIHEAP. Furthermore, addressing the tendency of younger clients to seek help only after disconnection, streamlining state payment processing timelines (which currently take 60-90 days to reach utilities), and resolving problems with social service agency reimbursements are critical components.

Additionally, efforts to enhance the system should encompass the implementation of a uniform application process across agencies, the updating of the outdated LIHEAP service guide, and the provision of online tools for statistical reporting. Social service agencies seek more robust case management processes to comprehensively address family issues and advocate for digital audits by the state agency overseeing LIHEAP instead of in-person audits. They aim to eliminate the requirement to count Section 8 utility assistance against LIHEAP assistance calculations and propose increased collaboration with community partners for information sharing. Collectively, addressing these multifaceted issues requires a systemic, collaborative, and forward-looking approach to enhance support for applicants.

A few social services staff told us there were pleased the utility was conducting research. One staff person remarked, "In 20 years, have never seen a utility talk to agencies about improvements."

ADDRESSING FRICTIONS

Although our research was impactful (e.g., the LIHEAP digital app has enrolled thousands of low-income customers who have received assistance paying their utility bills in one of our service areas) and insights were gleaned which helped shape the development of products and services for the utility (e.g., Power Through generators will help businesses remain open during severe weather), the product development process took longer than was desired, in part because strategic design, as well as the

innovation process, were both new to the organization. We needed to bring more of our stakeholders in.

The first major process change to bring in those stakeholders was the creation of the innovation working group whereby we incorporated our colleagues from the operating companies, legal, regulatory, IT, sustainability, and others across the enterprise to provide a voice and ensure that our focus and work is aligned with their respective organizations and to bring back the work we are doing for support.

Another key focus area in process is the notion of "Idea to Action in 100 days." This is an intentional acceleration of the product development process whereby we have incorporated standardized processes, business models and stakeholder alignment to identify the most actionable opportunities for product development. Products will move more efficiently through the innovation process.

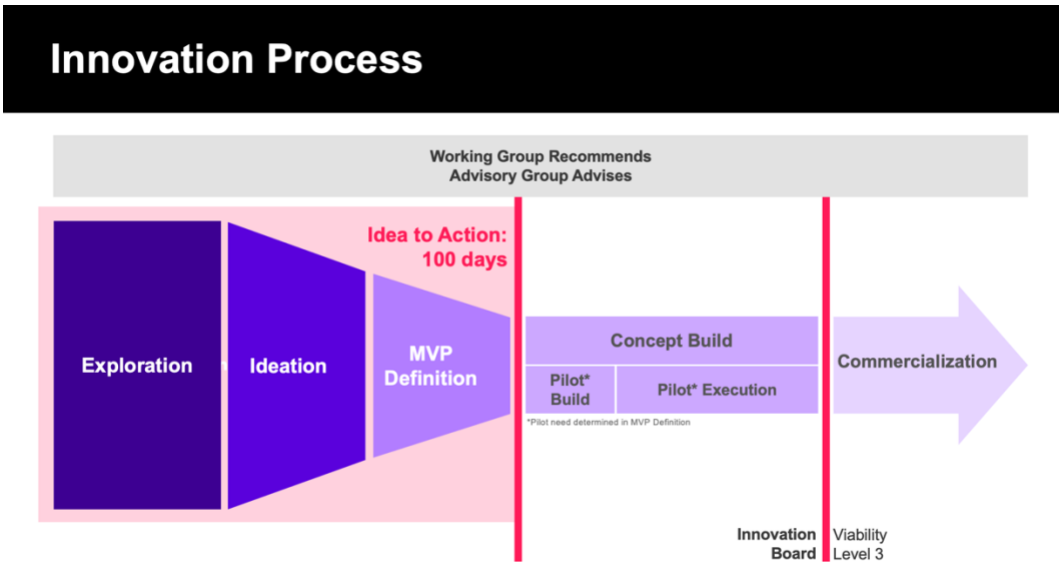

Figure 3. The KeyString Labs Innovation Process.

ORGANIZATIONAL AND BUSINESS IMPACTS OF OUR REVISED PROCESS AND ETHNOGRAPHIC RESEARCH

Our innovation process was revised several times over the course of three years, and this had three main organizational and/or business impacts that are discussed below. Ethnographic research played a critical role in helping us to better understand our customers and their needs regarding energy-related products and services.

Co-creation of Products

Our company-wide Innovation working group was organized earlier this year to further bring together various stakeholders from across our company. Instead of

meeting to approve or discontinue various service and product designs, this group of our colleagues actually work with us early in the innovation process to learn about customer frictions together, and to determine what products areas we should focus on before we form teams and ideate toward prototype development.

An Innovation Playbook

A strategic designer worked with another member of our innovation team to create an Innovation Playbook. This guide enables all innovation teams in the lab to access standardized templates to move us through each of the steps in our innovation process: from Exploration, to Ideation, Piloting, and Commercialization.

Commercialization of Products

Partly as a result of insights gained from ethnographic research, as well as co-creation workshops, and strategic sessions, a few products have recently reached the commercialization stage and are available to our customers.

One product such product is Power Through, which was commercialized in Louisiana in 2021. Power Through is a backup-generator service for commercial and industrial customers. From our company's website:

> "Power Through is an energy resilience service offering backup generation at an affordable rate. We facilitate the installation, operation, and maintenance of natural gas-fired generators at customer facilities for a monthly cost added on the customer bill rather than a total upfront cost. The generators are first and foremost to provide enhanced reliability of electricity at customer sites. Second, the generators provide energy in the electric market when not being used for emergencies. The production of energy in the electric market allows Entergy to provide this service to participating customers at a discount."

Another product which is expected to soon graduate from the pilot stage to commercialization is the LIHEAP digital application. The digital application for the federal energy assistance program was piloted in one state and should be available to our customers in two states by 2024.

CONCLUSIONS

Our work in the Gulf South region has been met with both challenges and opportunities as we strive to address the severe impacts of climate change and enhance residents' lives. Through our innovative approach, incorporating ethnographic methods and systems thinking, we have made significant progress in understanding our customers--who are the people of this region--and in guiding our product strategy. However, like many other researchers during this time, we have also had to navigate the disruptions caused by the COVID-19 pandemic.

Our ethnographic research has been instrumental in shaping the design of two key products. The Power Through backup power service for commercial and industrial customers and the LIHEAP digital application for low-to-moderate income individuals seeking energy assistance. These two products demonstrate the tangible outcomes of our research efforts. They were developed through a co-creation process that involved external and internal stakeholders and considered customers as part of a larger system.

While our journey has not been without its challenges and setbacks, we acknowledge the importance of frictions as an inherent part of the innovation process. This awareness has allowed us to learn, adapt, and refine our processes and overall research approach to better serve our customers and the community. We are committed to continuing our innovation journey, leveraging the insights gained from ethnographic research to co-create future products and services that address the energy needs of the Gulf South region.

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The Uncommon Good

Making Room for Radical Transition Imaginaries

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Public, social and community organizations are, in many locales, driving systems change toward social and economic equity, and environmental justice. But their visions for what achieving systems change should look like and what it will take to realize them are as diverse as the organizations pursuing them. Organizational coalitions are spaces where diverse groups converge to negotiate their distinct transition imaginaries: "collectively held, institutionally stabilized, and publicly performed visions of desirable futures" (Jasanoff and Kim 2015, 153) that suggest economic, social, and natural arrangements for the common good. These negotiations aim for reaching a shared purpose and set of goals that can guide the collective efforts. However, focusing on high-level goals without contending with the diverse values and ethics that the collectives uphold can lead to a superficial and performative alignment that overshadows critical tensions, or worse, reinforcement of dominant ways of thinking that are at the root cause of the issues. As an alternative, manifesting diverse imaginaries can help uncover the diverse interpretations of futures suggested by high-level transition goals, and move beyond the dominant narratives of progress towards more radical, yet actionable transition visions.

This article proposes a design-driven collaborative sensemaking approach for manifesting the diverse transition imaginaries in emerging coalitions as a means to create more inclusive and pluralistic transition visions. We utilize narratives as a mechanism through which designers can uncover the distinct imaginaries that drive the existing initiatives, understand the tensions between the values and ethics underpinning these imaginaries, and activate alternative imaginaries in collective negotiations of transitions. We propose that, by employing discourse analysis in combination with design tools, transition practitioners can more meaningfully engage with alternative value systems and mindsets.

Keywords: narrative, discourse, socio-technical imaginaries, design

INTRODUCTION

In 2023, humanity experienced the hottest temperatures on record in its existence. We heard numerous calls for global cooperation, pointing to the planetary crisis that threatens the future of all species, including our own. Calls aim to radically transform our lifestyles, neighborhoods and cities, alongside the global flow of resources towards a 'common good'. Yet, humanity does not agree on what that transformation ought to look like. Despite the apparent universal desirability of the United Nations' Sustainable Development Goals or comparable overarching

transition objectives, social groups often have disparate visions for what achieving these goals should look like, as can be observed in their competing narratives. This diversity of interpretations of common good is often regarded as a barrier to collective action, where we aim to create a shared vision that can guide collective efforts (Kania and Kramer 2013).

However, we argue that, rather than a barrier, this diversity is a fundamental and necessary condition for forming inclusive transition coalitions, and a creative resource for envisioning alternative futures beyond the dominant norms and mindsets that govern our world. In fact, the concept of common good, with its significant influence in Western political thought is a vague and contested one (Jaede 2017). Yet this very vagueness and the constant work of defining what common good means is a fundamental condition of democratic collective action (Mouffé 2000; Mansbridge and Boot 2020). Rather than rushing to align, we invite designers and transition practitioners to engage with this contested nature of common good through diverse narratives of stakeholders, and contend with the different value systems and mindsets that social groups uphold in imagining better worlds.

We propose a practical approach for designers and transition practitioners to use narratives as part of a collaborative sensemaking process for shaping inclusive and imaginative transition initiatives. We emphasize looking at narratives as a way to account for diverse visions of common good and surface the tensions amongst these, as a way to destabilize dominant ideals of common good in favor or radical possibilities. We illustrate how this approach can be used through an example of food system transition in Chicago and, more specifically, drawing on the Design for Climate Leadership course at the Institute of Design (ID) at Illinois Institute of Technology. In this course, faculty and students facilitated a collaborative sensemaking process in the context of an emerging city-wide initiative for food waste prevention and management in Chicago. We introduced a set of tools and frameworks to identify and draw out the tensions across stakeholders' narratives in the sensemaking process, in tandem with other design tools and methods.

In this paper, we share our experience using this approach based on the outputs of the course, as well as our lived experience, to examine the following questions:

1. How can practitioners, who are working towards transformative change, use narratives for a pluralistic framing of transitions that accounts for diverse and conflicting visions of common good that social groups uphold?

2. How might engaging with divergent ideas of common good promote more inclusive and creative imagination of transition pathways?

THEORETICAL BACKGROUND

Seeing Transitions Through Narratives

Over the past decade, we have been observing a "narrative turn" (Goodson and Gill 2011) in sustainability scholarship, acknowledging the power of narratives, and storytelling, to stabilize and destabilize public opinion, as well as inspiring new ways of thinking (Bien and Sassen, 2020; Moezzi, Janda and Rotmann, 2019; Riedy 2020). "Narratives of change" (Dobroć, Bögel and Upham 2023; Wittmayer et al. 2019) or narrative change (ORS Impact 2021) illustrate how some interventions break the patterns of thoughts and beliefs surrounding an issue and build legitimacy around alternative pathways and imaginaries.

In the context of sustainability transitions, narratives are interpreted as meaning systems by which various stories are woven together to make sense of situations and events (Dobroć, Bögel and Upham 2023). As organizations and communities participate in the collective work of transformative change, they produce diverse narratives to frame their understanding of issues, portray visions of desirable futures, and advocate for specific pathways within the practical endeavor of the organization. They do so by purposefully making certain actors and relations visible, at the expense of others, and consequently legitimizing certain pathways as more desirable and feasible over others. Narratives take tangible forms, spanning from policy documents and impact assessments that guide large-scale initiatives, to social media postings, artistic creations and community spaces that offer glimpses into a world reimagined.

Narratives do more than represent reality, they actively construct it. And thus, they are a powerful force in how we make sense of the world around us, and envision its alternatives. Jasanoff and Kim (2015) conceptualized this as Socio-Technical Imaginaries, "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (153). We draw from Science and Technology Studies (STS) and critical future scholarship to consider narratives as a mechanism through which our collective visions of common good are constructed and performed as driving forces of these imaginaires.

Transition scholars utilize narratives to understand how actors form coalitions around specific imaginaries to contest the politics of transition policies, agendas and interventions (Friedrich et al. 2022, Moezzi, Janda and Rotmann 2017), and surface the controversies they involve (Baeris and Katzenbach 2021). While early research on imaginaries focused on public policy discourse and national agendas of science and technology production, a number of researchers have turned their attention beyond expert narratives to highlight local and translocal networks as spaces of resistance where alternative imaginaries are produced and performed (Chateau, Devine-Wright and Wills 2021; Dawson and Buchanan 2005). Tidwell and Tidwell (2018) state that when our collective notions of the "good life" are shaped by experts, "we are no

longer looking at the 'good life,' but rather the 'good' life as perceived by a group whose perspective we are privileging above others." (105).

We align with this view and argue that surfacing and nurturing alternative imaginaries in transition efforts is a fundamental capacity to move beyond the dominant mindsets that intentionally or unintentionally determine the rules and norms of our societies today. Seeing the world, and transitions through narratives offers a way to embrace the multitude of lived realities that shape our understandings of the world and its possibilities – as opposed to a purely positivist mindset that seeks to seeks a universal representation of reality, or bends to the "overarching politics of the real" (Inayatullah 1990). This is a call for alternative, inclusive, and pluralistic epistemologies that foreground situated understandings of the world (Haraway 1988; Paxling 2019; Suchman 2008) as opposed to a search for comprehensive and cohesive representations that the dominant view of transitions favor. As Paxling (2019) states, without changing how we produce knowledge, we risk reverting back to the normative categories that organize our understanding. Narratives, when seen as fragmented, situated and non-linear accounts of lived and dreamed realities, can provide the flexibility for new and contested meanings to emerge.

Design as a Narrative-Making Practice

Despite the growing interest in narratives, we observe a gap between their use for critical analysis of diverse claims and visions associated with transitions, and their generative application to encourage thinking and imagining beyond the dominant ideologies. In this context, the field of design occupies a significant role. The work of design is inseparable from the narrative construction of reality, and our collective imaginaries; both by shaping material arrangements that organize humanity's collective life (Speed et al. 2019), as well as shaping the environments, processes, interfaces and tools through which we collectively learn, think and imagine.

In this sense, designers set the potential material conditions of how we make sense of the world (Krippendorff 2005; Krippendorff 2020; Tharp & Tharp, 2019), and manifest it in social, material and verbal narrative forms. Joachim Halse (2013) proposes that unlike ethnography that is traditionally interested in the present and the past, design has the potential of tangibly articulating futures we would like to see while contesting the present. With or without intent to do so, design has the influence of stabilizing and destabilizing existing imaginaries (Forlano 2019) and enabling alternative ones (Southern et al. 2014). While this capacity of design has the potential to move our thinking beyond the dominant imaginaries, it can equally solidify the dominant ways of thinking, further obscuring radical possibilities. As Sohail Inayatullah (1998) states, "the discourse we use to understand is complicit in our framing of the issue" (820). We call for an explicit recognition of the narratives through which we make sense of the world and design its possibilities, given that we can't address today's challenges with the same mindsets that created them.

Reclaiming the Futures with Narratives

Transition narratives, which traditionally focus on pathways and drivers, get disconnected from the lived realities of communities who have been disproportionately impacted by the negative outcomes of policy and technology agendas or rendered invisible by these. In reaction to linear development visions that "empties the future" as a set of decisions to be made, Groves (2017) highlights community-based narratives that describe "lived futures" (34). Just like archeologists constructing a picture of past worlds from their fragments, narratives, in their fragmented nature, can allow construction of alternative worlds in ways that lure imagination away from mental constraints (Baerten 2019). As opposed to dictating a unified trajectory of events, critical futures invites participants to explore multiple alternative worlds and historic trajectories through storyworlds that are anchored in daily experiences (Candy and Dunagan 2017; Howell et al. 2021; Mazé 2019).

Critical futures practitioners do so by co-creating alternative narratives of futures with communities, and centering their values and imaginaries in envisioning our collective future, through, for instance, experiential and provocative engagements or collaborative storytelling. They use narratives as a way of engaging with futures "from the inside" (Burdick 2019), in situated, subjective and provocative ways (75). These interventions aim to help participants defamiliarize with the present, engage with alternative imaginaries and challenge the dominant techno-deterministic narratives of what drives our futures. They equally highlight how mainstream visions of technological progress often overlook considerations related to gender, race, and ability; ignoring the distinct frictions that marginalized groups experience, and moreover, their agency in shaping these futures as creators and innovators (Bauman, Caldwell, Bar and Stokes 2018; Harrington, Klassen and Rankin, 2022; Tran O'Leary, Zewde, Mankoff and Rosner 2019). By drawing on this critique, we call for an increased attention to the identities, values and imaginaries of local communities; not as beneficiaries, but protagonists of transformative change.

With the practical concerns of transition practitioners in mind, we propose that accounting for the existing transition narratives, and their counter-narratives can be a way to engage with the diverse imaginaries often eclipsed by the dominant transition narratives. We argue that it is precisely at the intersections of these diverse imaginaries that we can reveal the tensions arising from different interpretations of common good, to inform a more inclusive and pluralistic framing of transition visions.

APPROACH

In this study, we propose a practical approach for contesting ideas of common good through the vantage points of different stakeholder groups in collective articulation of transition goals. We position narratives of change (Wittmayer et al. 2015) as a key mechanism through which socio-technical imaginaries are constructed

and performed: solidifying specific interpretations of public matters and visions of desirable alternatives, as well as legitimizing certain pathways while marginalizing others. Unlike more objective and linear formulations of change processes, such as theories of change, seeing transitions through narratives can help us more authentically and critically engage with the messy and often controversial nature of transitions, and consider possibilities beyond the ideals, pathways and values that are reinforced by the dominant narratives.

Rather than seeking to build a singular vision for different stakeholders to align on and act upon, we prioritize manifesting and working with the dissonances between these diverse ideas of common good, with the intention of better problematizing the transition itself, as we envision collaborative pathways (Figure 1). Driven by these goals, we propose a practical way for working with narratives together with ethnographic design methods to support collaborative sensemaking with stakeholder groups, in building inclusive and pluralistic transition visions.

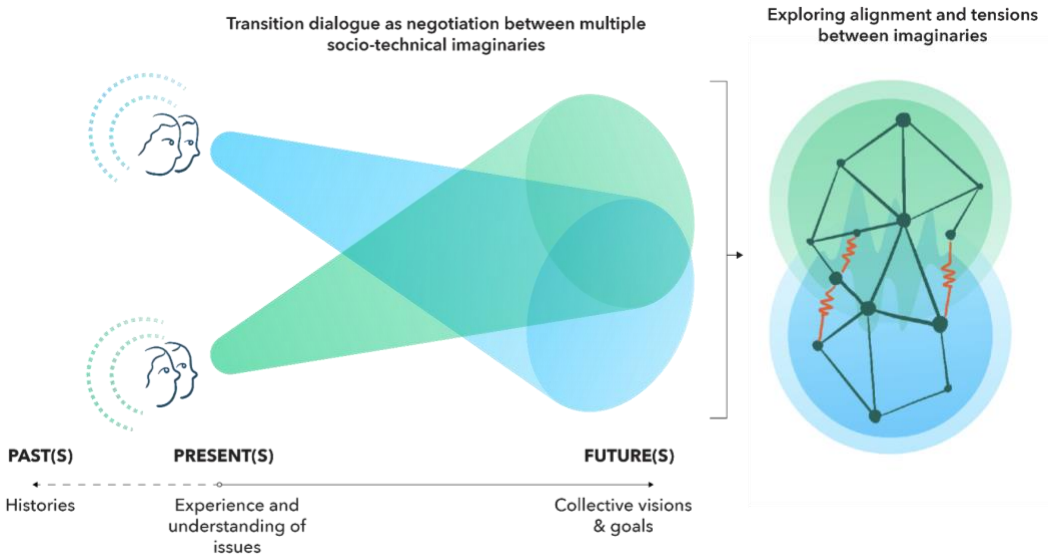

Figure 1. Exploring alignment and tensions between socio-technical imaginaries of stakeholder groups

Our methodology is grounded in Critical Discourse Analysis (CDA), an approach that has been widely adopted by energy and transition scholars in order to understand how distinct transition imaginaries get constructed and advocated for within policy, science and technology debates. CDA explores the social construction of the world (Gee 2014; 2017) and complex social phenomena through language as a system of representation. It differs from other discourse studies by its "constitutive problem-oriented" (Wodak and Meyer 2018) perspective, as it seeks to understand how discourse "helps to sustain and reproduce the status quo" or transform it (Fairclough and Wodak 1997, 258). CDA pays attention to power relations of class,

gender, race, ethnicity and other forms of social and political identities with the intent to "root out a particular kind of delusion" (Wodak and Meyer 2018, 7). Rather than a specific method, it is founded on this critical goal that can be accomplished through a combination of methods including text-based analysis as well as other ethnographic methods.

Drawing from CDA, we prototyped a set of tools to support making sense of and constructing transition visions with diverse stakeholder groups in an inclusive and pluralistic way. These tools aim to provide a scaffolding for:

1. Utilizing stakeholders' narratives to unpack diverse interpretations of common good that shape transition imaginaries,

2. Surfacing the differences in mindsets, values and worldviews beneath the overarching transition goals.

3. Contending with the tensions amongst these to foster inclusive and generative transition debates.

We prototyped this approach in the context of a graduate design course where we collaborated with an emerging transition initiative for city-wide food waste management in Chicago, which involved a diverse group of stakeholders. We introduced a set of tools to uncover how different groups make sense of the issues, what values they are driven by, and what tensions they need to negotiate across their visions for the common good. Our learnings are based on the various materials that students created throughout the course project such as service maps, discussion notes, and online whiteboards. We also incorporated vignettes derived from our ethnographic observations and experience as project guides, collaborators and researchers within the Chicago food ecosystem.

SETTING THE STAGE: MAKING WASTED FOOD MATTER

As the Institute of Design project team, we had been involved with national and local wasted food research for several years, and most recently through a National Science Foundation funded research network, Multiscale RECIPES. The workshop course emerged from our ongoing conversations with organizational leads for the Chicago-based Wasted Food Action Alliance to align research and action across multiple organizations. We were asked to facilitate a collaborative sensemaking process for an emerging city-wide initiative for fighting wasted food in Chicago. This effort was in support of the City of Chicago's participation in the Food Matters program of the Natural Resources Defense Council (NRDC). The program aims to support city administrations and local partners in leveraging their collective know-how and efforts in implementing large-scale food waste management policies and programs.

Chicago is a unique place for seeing how different food futures unfold next to each other, grounded in different ideas of what makes a good food system, and "common good." The city aspires to become the "Silicon Valley of Food" with inclusive development of its food industry (Chicagoland Food and Beverage Network, 2021), and home to a growing number of food startups. Meanwhile, it has struggled to build food security for the 20% of its population without sustained access to nutrition, specifically in South and West side communities with a predominantly Black and Latinx population that have been historically disinvested and discriminated against. But this is not a tale of abundance and scarcity. In response to the lack of access to conventional food channels, there is a flourishing community-driven food system where communities are growing, circulating, sharing and decomposing food in ways that build power, solidarity and healing. In the absence of a public infrastructure or policy for tackling food waste, it is the community groups, public schools and small-scale composters and urban farms that have been doing most of the heavy lifting for more circular food practices.

> I take a break from the Chicago Food Justice Summit sessions on Zoom to join the 'Future of Food' webinar by Accenture that's happening on the same day. It's a panel of corporate executives and food innovators. When asked about what he thinks about the future of food, one of the panelists tells the story of how he had recently been welcomed with his name as soon as he stepped into a high-end restaurant. "They are caring enough to pronounce my name correctly", he emphasizes. I look back at my notes from the conversation I attended less than an hour ago. "...radically re-imagine our food systems for each other, for our families, for our communities and beyond. [...] our traditional food systems were never about access, it was about nourishing each other…" I feel torn between two realities and find myself thinking: "Are we even living in the same world here?" – Author's personal reflection, February 2021

We indeed live in different worlds, where food has radically different meanings, told in different stories. Having been part of these debates in Chicago for several years, we knew that any conversation for initiating collective action would have to account for the diverse realities and imaginaries and consider the diverse meanings of the 'common good' for the groups who have been impacted by the existing systems in radically different ways. This included contending with our own role and assumptions as researchers who are part of an academic institution. Importantly, it involves contending with researchers' legacy of knowledge extraction and exploitation of marginalized communities across the Chicago and US, where community members express weariness about their stories being taken and re-told for someone else's benefit (Chicago Beyond, 2019).

Course Structure

We organized the course as a platform to work with City-identified stakeholder organizations to map wasted food flows, identify current challenges for more

effective management of these flows, and envision collaborative opportunities across the local food ecosystem. At the outset, our partners aimed to construct a collective vision statement and a strategic roadmap to guide the inception of a local initiative and rally stakeholder endorsement through clear and tangible steps. While recognizing the need for actionable outcomes, we explicitly advocated for a less-linear approach that sets the stage for diverse positions to be made visible, with the aim of preventing superficial consensus around a singular vision.

Rather than prescribing a unified vision and specific pathways, the course sought to help stakeholders see the systemic issue of food waste from each other's vantage points both in an operational and critical sense. We adopted a pluralistic approach and aimed to re-frame the transition as a contested space at the intersection of different imaginaries of stakeholders. We structured the course as a 14-week engagement where ten graduate design students worked with three key stakeholders representing the City, food waste rescue and recycling, and food service/retail (Figure 2). Throughout the project, the students used a set of tools to analyze the narratives of stakeholders, with the goal of identifying the imaginaries that guide their efforts for creating a better food system and surfacing important shifts and tensions that need to be negotiated across these imaginaries towards a collaborative alignment. The students also used existing design tools such as service-system mapping to illustrate the material flows of food and waste across food service, rescue and processing. By doing so, we combined critical reflection on transition goals with an operational lens, grounded in different perspectives of stakeholders.

The activities included two 'Chicago Food Matters Think Tank' events that convened a wider group of about 30 stakeholders from public policy, food service and retail, food scrap processors and local community organizations.

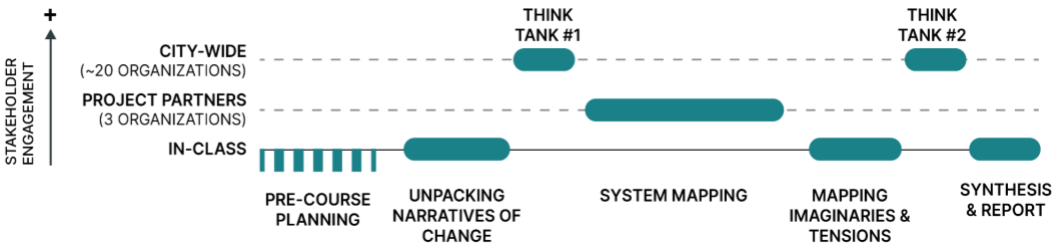

Figure 2. Timeline of course activities and stakeholder engagement

Unpacking Narratives of Change

We grounded our course narrative in the proposal that there is no universal birds-eye (or God's eye) view of a system; rather, our understanding is partial, situated and subjective. It is partial and depends on where we are looking at it from. It is situated in our own context, worldview and intent. And it is socially constructed and subjective in that it is mutually shaped both by scientific knowledge as well as by

our social and organizational realities and lived experience. We wanted to keep a distance from the idea of the all-seeing designer visualizing and taming a complex world. We initially formed four student teams, each working with a project partner to understand the issue from where they stand, making sense of these views, and constructing a patchy but shared picture.

We started the project by exploring how the project partners frame their vision for transformative change in their publicly available narratives (e.g., on their websites or social media), and how they position their role within this vision. We introduced a template to help unpack the meaning of overarching transition goals (such as economic development and community empowerment) through the narratives of the different stakeholder groups. We used a dialogic approach, where this template served as a shared scaffolding between the student teams, to compare how stakeholders interpret overarching goals of the transition efforts, by focusing on where they diverge and converge. Since discourse can involve any material that joins the construction of meaning (Krippendorf 2005; Wodak and Meyer 2015), teams used a range of online sources such as websites, reports, social media pages of stakeholders to capture and unpack how each organization articulates its vision and strategy with textual and visual materials.

Figure 3. Analysis of a food rescue organization's narrative of change, student work using template developed by authors

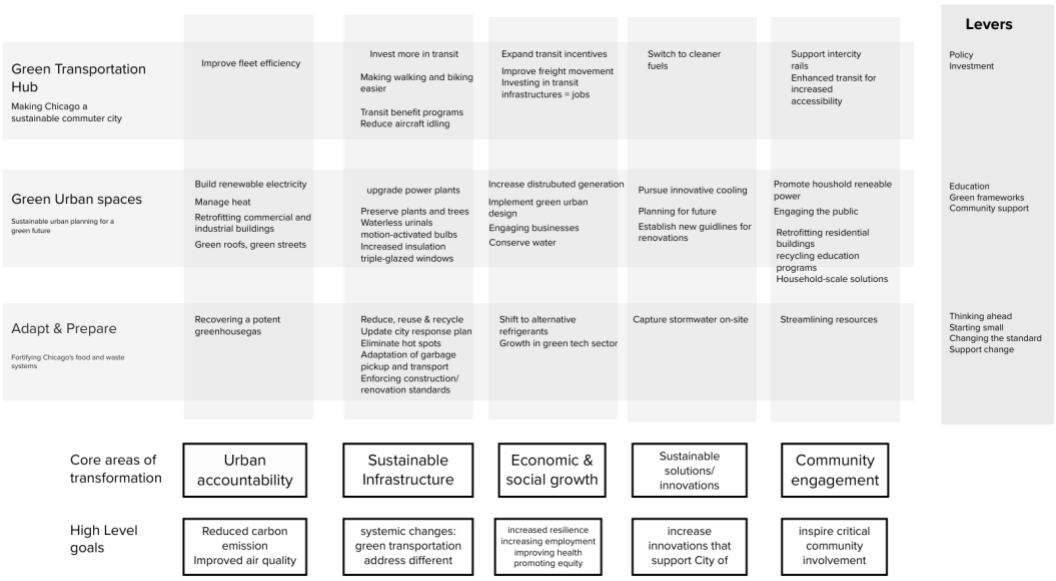

Figure 4. Analysis of a food service business's narrative of change, student work using template developed by authors

Doing this initial analysis exposed the team to the array of considerations based on which stakeholders relate wasted food to different aspects of a longer-term transition of the food system, and its wider implications on society. Wasted food is often articulated as an environmental concern, and an operational challenge to divert edible food and inedible scrap out of landfills. Yet, as the analysis showed, it also involves the emergence of a green technology sector and its potential to create jobs; or from a community organization perspective it concerns access to food as a human right.

But more significantly, comparing the meaning of these goals across different narratives helped us start surfacing the divergent aspirations of organizations that might be obscured by this seemingly shared transition vocabulary (e.g. economic development, sustainable food production etc.). One such term was 'community'. We found that, city government perspective that centers urban sustainability in understanding wasted food, the term 'community' signifies engagement of the public and promoting social equity through expanded food access and employment. From a food industry perspective, it involves "sharing harvest and knowledge with neighbors". And from a community organization perspective, it means empowering communities through education, spaces and organizing to foster sustainable lifestyles and community-based food production such as "equipping farmers with skills in high-tech growing" (Green Era n.d.). Not only do these imply different arguments for why 'community' matters in addressing wasted food, but they also suggest different levels of agency and power for the community.

We used the online narratives of four stakeholders to have an initial understanding of what matters to them in making wasted food matter, and building a dose of skepticism towards the terms through which articulate these matters, prior to our first in-person engagement with stakeholders.

Identifying Imaginaries of Wasted-food Transition in Chicago

We used the overlaps and differences between the visions of stakeholders to define three imaginaries for wasted-food transition in Chicago. These imaginaries offer distinct ways of seeing the issue, but they are not necessarily exhaustive or mutually exclusive in their considerations. Just as an organization can be a member of multiple social groups, an organization's vision might intersect with multiple imaginaries. In defining these imaginaries, we focused on what matters organizations' center in their vision, who they consider as the protagonists of change and what strategies they prioritize.

- **Sustainable Cities:** Centers sustainable and green urban infrastructures that are developed through citizen engagement and public-private partnerships to incentivize adoption of sustainable practices of food production and recycling and promote innovative solutions by an emerging green industry.
- **Strong and Sustainable Food Industry:** Centers positive environmental and social impacts of food businesses through commitment to local and sustainable food production that can create jobs for the residents and promote socially conscious consumption habits.
- **Community-led Food Justice:** Centers radical transformation of food systems with innovative and community-led approaches to fight racism, build economic justice and social equity by advancing hyperlocal, circular and culturally appropriate food flows.

These three imaginaries offered us an initial critical foundation and openness to diverse ways in which stakeholders might interpret current challenges and give precedence to alternatives, prior to our first contact with the wider stakeholder group. The Food Matters Think Tank event gathered 30 stakeholders at the Auburn Gresham Lifestyle Hub, a living testament to a community-driven revitalization initiative striving for a variety of healthier, sustainable, and equitable solutions for the local community. The workshop activity aimed to kickstart the project dialogue by identifying the priorities and barriers for each of policy, food rescue, recycling and community organizations stakeholder groups at the event.

A portion of the workshop discussions revolved around practical considerations for scaling implementation of existing food rescue and recycling efforts, highlighting issues like the absence of clear regulations or adequate physical infrastructure. The conversations also brought forth tensions between the prevailing mindsets and norms that characterize the current state of the food system, and the more radical visions for the future, advocated particularly by community organizations – tensions

that seeded our subsequent debates. One of the workshop posters featured the phrase 'rethink, reduce, rescue, recycle', emphasizing the need to reconsider the system while envisioning actionable solutions as framed in the usual 3R slogan of food waste prevention.

A discernible tension concerned the need for a more collaborative environment, a priority that all stakeholders seemed to agree on – and challenged the possibility of authentic collaboration in the present competitive landscape of the food production and rescue environment. This landscape, with certain entities seeking profits from surplus food redistribution along with structural power disparities between mutual aid groups, major food banks and corporate donors, inadvertently fosters a competitive atmosphere rather than a collaborative one. The debate also highlighted the mindsets of 'food scarcity' and 'charitable donation' that perpetuate the systemic inequities, as opposed to ideas of wasted 'abundance' and 'food as human right' that are fundamental to the food sovereignty ethos of mutual aid networks.

System Mapping

In the next phase of the project, student teams collaborated with project partners to visualize their current operations in the domains of city-run organic waste management, food service & catering, and wasted food recycling. We initially developed three system maps from the operational perspectives of each project partner, which were later integrated into comprehensive visuals that depict the local service systems for food waste prevention, rescue, and recycling. These integrated maps showcased avenues for multi-stakeholder engagement across all tiers, and highlighted present issues.

However, combining an operations lens with a narrative one encouraged the teams to look beyond the issues at the surface level, and re-frame challenges considering the norms and mindsets that are constitutive of the larger problem. One such issue was the lack consciousness and knowledge of the public about the importance of food waste prevention and recycling. This is a prevalent issue in wasted food discourse, pushing consumer education campaigns to the top of food waste prevention strategies as in ReFED's (2023). Yet, leaning onto the debate of mindsets scarcity and abundance raised in the first Think Tank event, the team challenged the notion of abundance in food service. They reframed the issue as a cultural one that "equates quality and sense of abundance with excess food" as opposed to a sense of abundance rooted in sharing as framed in community-led food justice imaginary.

Mapping Imaginaries & Tensions

While narratives of change of organizations often emphasize positive outcomes for common good, focusing only on what is deemed desirable tends to blur the lines between different positionalities that are in tension with one another. After all, both agri-corp giants and their grassroots opponents claim to build a world where none

goes hungry. Imaginaries concern what their proponents are up against with respect to the status quo, as much as what they for. We prototyped an imaginaries mapping tool (Figure 5) to compare and contrast how different imaginaries problematize the status quo and what propose future alternative, in order to identify contested shifts that need to be considered and negotiated. The tool helps explore these shifts across various aspects of a systemic transition (e.g. cultural, political, data & technology etc.) based on eight capitals framework (Nogeuira, Ashton & Teixeira 2019). We mapped each imaginaries' claims and aspirations using color-coded stickies and used the framework as a conversational aid to surface these imaginaries' claims and counterclaims in relation to one another.

> On most days, I could sense the hesitation in the class, as this meant questioning and re-creating the brief, while questioning our own belief systems and the narrative of [the] field of design itself. It often was a constant act of fostering debate while constantly hitting the breaks to try and see our own narrative and questioning the common ideals such as economic development, job creation, access that are the social impact vocabulary of many design projects. We leaned on our personal experiences, things that we were weirded about the world we live in, and the American food culture in particular with its infinite grocery stores, perfect vegetables and giant portions. – Author's personal reflection, March 2023

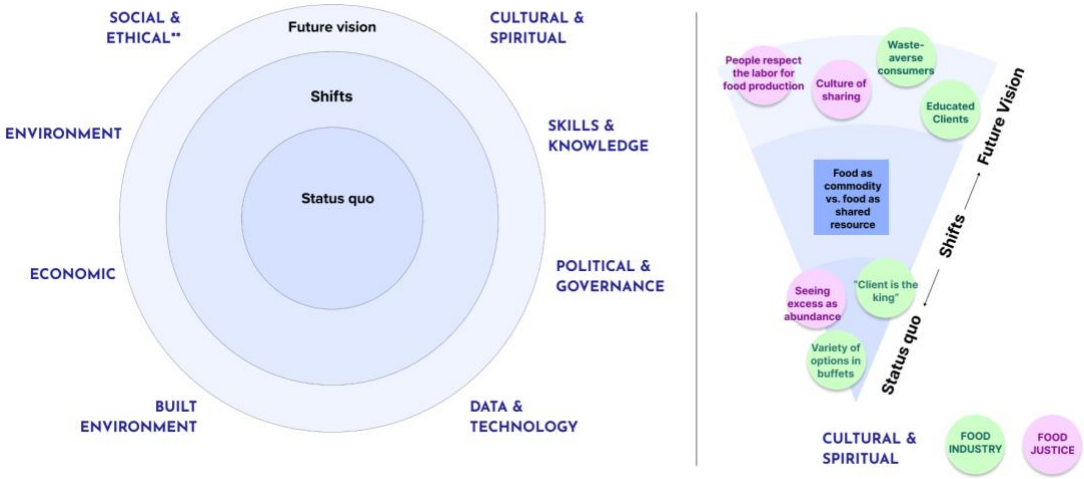

Figure 5. Imaginaries mapping tool (left), example use to compare food industry and food justice perspectives on cultural & spiritual dimension of wasted food (right)

Figure 6 demonstrates how we used the tool to debate prevention of wasted food as a cultural transition, and question the norms and mindsets that perpetuate wasteful practices of production and consumption. Through a comparative analysis of how food culture is presented in the Strong and Sustainable Food Industry's

imaginary versus the Community-led Food Justice imaginary, we reframed the deeper cultural transformation as a matter of our society's relationship with food – a contrast of seeing "food as a commodity vs. food as shared resource." Each one of these shifts point to potential areas of generative tension where stakeholders' visions, values and loyalties might diverge from one another, and from the dominant narrative. Yet, we preferred to phrase these as critical shifts to emphasize their role of suggesting radical pathways, rather than insurmountable conflicts. We formulated eight such dichotomous statements between the status quo and a critical systemic shift (Table 1). We then turned these into a deck of cards to support the ideation session with the stakeholders at the second Food Matters Think Tank event.

Figure 6. Imaginaries mapping tool used in class to identify critical shifts (left), and deck of critical shifts cards used during the Food Matters Think Tank event (right)

This event gathered over 30 participants from comparable stakeholder groups for a share-out and ideation session based on opportunity areas for prevention, rescue and recycling of wasted food, and the tensions between how different ideas of common good manifest themselves in these areas. The students facilitated discussions in eight break-out groups, with an opportunity area assigned to each group. As participants discussed barriers, emerging solutions and needs related to each opportunity area, we prompted them to use the deck of cards to explore the pivotal shifts that they consider significant in this endeavor. Rather than prescribing specific paths, the cards were aimed to entice conversations on longer-term impacts that need to be considered, to build legitimacy around niche interventions, and challenge norms and mindsets that our current system is founded on. We encouraged participants to openly articulate the frictions they encounter, instead of presenting well-rounded solutions.

Table 1. Critical shifts proposed in the deck of cards

Financial	Economic	Cultural Values	Governance
Food waste organizations working cooperatively vs. competitively	Food scraps as waste vs. as a source of value (jobs, energy, soil)	Food as a commodity vs. food as a human right & shared resource	Responsibility of food waste mgmt is on the individual vs. on the systems
Data & Technology	**Built Environment**	**Human Knowledge**	**Environmental Values**
Food waste is unimportant & invisible vs. food waste is valued & tracked	Spaces designed to dispose of food scraps vs. rescue food & scraps	Valuing expertise of executives or academics vs. the expertise of the people doing the work	Not knowing the environmental impact of our food waste vs. internalized environmental costs

Emergent Pathways

Following the event, the students synthesized the discussions into a list of opportunity areas and recommendations to inform development of a strategic pathway by our partners. The debates sparked at the event, challenged some of our previously held assumptions regarding the desirability of certain opportunity areas that we proposed and thus, led to new approaches. In addition to debates on cultural and economic paradigms that we previously discussed, two more emerged, concerning governance of collaborative efforts, and the role of data and technology.

Governance was a big question as the current landscape of food rescue and recycling in Chicago is fragmented across many grassroots efforts, without a city-wide infrastructure, or standardized process. Driven by a mindset of efficiency and seamless coordination, our opportunity areas proposed to "institutionalize and operationalize food waste prevention mindsets". However, this received push-back from the group, on the grounds that 'institutionalizing' mindset perpetuated the asymmetries in power between mutual aid groups and the institutions that control access to decision-making and resources. The dominant imaginary assumed that efforts need to be institutionalized to succeed, overlooking the significance of decentralized governance from a food justice standpoint. This prompted a shift towards exploring networked yet decentralized solutions that amplify existing community-led infrastructures.

In the dominant discourse of wasted food prevention, data infrastructures are considered pivotal for scaling up food rescue and valorization, often portrayed

through images of efficient industrial kitchens equipped with waste monitoring softwares. However, from a community organizing perspective, seeing the system mainly through data can render grassroots and community-based infrastructures invisible, and undermine their efficiency in responding to community needs. For instance, nearly twenty Love Fridges across Chicago neighborhoods serve as self-organized drop-off points for the mutual aid groups, while logging every delivery in pantries can be a hindrance in adhoc food rescue. This tension shifted our goal framing from more and better-quality data to flexibility and inclusivity of data-driven approaches, without shifting agency away from local groups who operate in a more relational mode.

We integrated these conversations into what we aimed to be a pluralistic synthesis, meaning, we sought to explicitly challenge the assumption of certain pathways being inherently desirable for all, as in the case of data-driven approaches. We highlighted the ongoing grassroots and community-based efforts as legitimate pathways for addressing wasted food in ways that can help shift the dominant economic and social paradigms that our wasteful food system operates from. Perhaps one of the most challenging tasks was translating a pluralistic approach into a project report in a way that is easily accessible and usable by the project partners, providing clarity without flattening the ongoing debates.

DISCUSSION

We presented a practical approach for using narratives to account for and contend with the diverse imaginaries of stakeholder groups in framing transition goals for collaborative action. We built on the recent work in transition studies, that advances narratives as a powerful mechanism to meaningfully engage with the controversial and conflictual nature of transitions, where under the seeming universality of high-level transition goals such as sustainability or equity, stakeholders portray different futures for the collective good. We introduced a set of tools in development that uses narratives for unpacking the diverse and conflictual meanings of transition goals, and building upon these divergent perspectives to challenge the dominant mindsets and norms through which transitions get framed. By explicitly engaging with narratives as tangible materials and abstract meaning systems that we design through, we were able to:

- Broaden our understanding of the transition in question, by considering it as a constellation of public matters (Latour and Weibel 2005) and aspirations extending beyond the dominant claims around the issue.
- Account for the diverse and potentially conflicting interpretations of high-level transition goals that characterize distinct imaginaries of stakeholder groups.

- Surface the tensions between the goals and pathways that different groups advocate for, and engage with these in a generative way. This enabled us to challenge our assumptions concerning the fitness and desirability of specific approaches, as well as the economic and social norms through which we frame the issues and potential pathways.

As opposed to framing transitions as a set of strategic actions orchestrated around an assumed ideal of common good, narratives offer us a way to engage with the plurality of lived and dreamed realities that shape diverse meanings of collective good. This fundamental diversity of understandings of what that common good constitutes, is a critical and creative resource to cultivate the radical shifts that our world needs. Clearly articulating the points where stakeholders' imaginaries diverged from each other and framing these differences as specific tensions provided a foundation for cultivating pluralism by actively resisting the tendency to reconcile these differences. As Mouffé (2000) contends, pluralism acknowledges and values differences while challenging the quest for unanimity and homogeneity, which often proves to be illusory and exclusionary.

Surfacing and sustaining this divergence early on was foremost, a tactical act, as it reduced the risk of a superficial alignment that might otherwise conceal tensions stemming from stakeholders' hidden agendas. However, this required a balancing act of making room for the differences without stifling ongoing dialogue. It was equally a political act, as it helped us identify the norms and values that are reinforced by the dominant narratives and the regimes that they sustain, which promote particular notions of common good. The challenge entailed tending to these differences without striving for immediate reconciliation, instead, allowing them to persist as the wedges that sustain open rifts, against the homogenization of perspectives within the prevailing narrative. And finally, it was a generative one, as it invited a reappraisal of the radical futures that are in the making, beyond the conventional blueprints of tackling wasted food. The "un-common good" we envision encompasses these departures from the illusory and oppressive homogeneity of commonality, embracing the richness of diverse perspectives and paving the way for transformative and inclusive shifts in our collective path forward.

LIMITATIONS AND RECOMMENDATIONS

This paper offered a methodological approach for using narratives to surface and work with the diverse and sometimes conflicting imaginaries of stakeholder groups with the aim of framing more inclusive and pluralistic transition visions. We would like to emphasize that the tools we prototyped here are not plug & play meaning generators, but aids for deep reflection and questioning to help practitioners navigate the intricate landscape of values and mindsets that underpin multi-stakeholder discourse, including their own.

First of all, narratives are a slippery and elusive material to work with. Meaningfully using narratives relies a lot on the group's ability to look beyond the buzzwords, identify the nuances in the meaning and recognize the historic and political ties of specific concepts. Therefore, we suggest a certain familiarity with the specific context, as well as the larger discourse that surrounds the issue. For instance, the seemingly interchangeable concepts of 'food waste' and 'wasted food' for an unfamiliar ear, have a significant difference in that the latter emphasizes the act of wasting a valuable resource, as opposed to normalizing it as another waste stream to be handled.

Organizational discourses tie the micro-world of an organization and its reasoning to the grand narratives that make up the large-scale reasoning of the world (Boje 2019). The external-facing narratives of organizations, such as reports, webpages, social media postings etc. which were the unit of analysis in this study, are often a highly regulated type of narrative, the facade of a messier web of stories, interactions and artifacts through which an organization makes sense of and articulates its vision. Thus it is important to account for the specific intentions of how an organization may choose to display or hide specific ideas from this facade, or explicitly counter the dominant narratives. Which is why the methodology presented here would be most effective when combined with other methods of contextual research, that can capture many meanings that might get concealed within the chosen and imposed limits of how an organization tells its story.

Lastly, we would like to remind readers that narratives are not limited to textual material, but encompass a wide array of digital and physical artifacts through which we construct meaning. Although its use was limited within this project, in previous iterations, we found visual ethnography, both digitally and on-site, to be a helpful complement to the analysis of textual material. Small-scale organizations and local communities, who may have limited online presence. express themselves through more informal forms of communication such zines, murals, physical posters, placemaking, or oral storytelling.

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Friction between Reticence and Narrative in Local and Global Interconnections along the Ethical Canadian Diamond Supply Chain

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This research analyses, through ethnographic research, the cultural interpretations of the global storytelling of Canadian ethical diamonds given by different subjects, belonging to diverse sociocultural and economic contexts, including staff of mining companies, indigenous communities, jewellers, and consumers. The study took place at the two ends of the diamond supply chain, in the Canadian Northwest Territories, where the mines and mining companies are located, and in two jewellery stores in Milan and Bologna, that sell Canadian diamonds. Introducing the concept of the Process of Argumentative Aphasia I highlight how the discourses of the participants in the research on Canadian ethical diamonds were becoming increasingly metaphorically unpronounceable and, therefore, misaligned with the official storytelling as I approached the mining context; whereas moving towards the sales contexts, the argumentative contents of the jewellers' and consumers' speeches were more aligned with the contents of the global advertising narratives on diamonds mined in Canada.

Keywords: Canadian ethical diamonds, Process of Argumentative Aphasia, Italian jewellery stores, Friction.

INTRODUCTION

During the past three decades the mining industry has been overwhelmed by concerns related to soil and water pollution, the unethical management of work organization and human rights in general (Le Billon 2006). From this disquietude a global narratology surrounding mining exploitation focuses on certain sensitive issues concerning environmental impacts, the destabilisation of indigenous communities living near mines, and the consequent reassurance of the existence of decent work practices within highly fragmented value chains (Armano 2023). Specifically, in the mining sector, diamonds have been the target of heated controversy by investigative journalism, activists, filmmakers, and researchers who have exposed harassment, especially in the African mining context (D'Angelo 2019). In light of these considerations, in 1999 five European organizations (Global Witness; Medico International; International Peace Information Service; Netherlands Organization for International Assistance; Netherlands Institute for Southern Africa) launched the Fatal Transactions campaign. Through it, terms such as "blood diamonds" and "conflict diamonds" were introduced to expose the problem of the financing of civil wars in Sierra Leone and Angola through the illegal sale of precious stones, and "terrorist diamonds" to talk about the financing of Al Qaeda and international terrorism in general. Thus, the Fatal Transactions campaign began to convey the message that buying diamonds was tantamount to killing civilians from

disadvantaged socio-economic groups. Restricting the trade in African diamonds was not the only aim of the Fatal Transactions campaign. The message to be conveyed also aimed at blaming a production system that was complicit in these illegal trades and the responsibility of consumers to boycott such products (Armano, Joy 2022a) in order not to be classified as people who indirectly contributed to supporting the perpetuation of violence against civilians living near mining areas in countries that are poor but have potentially emerging economies through the exploitation of non-renewable resources (Armano, Joy 2021).

The Ethical Certification of Canadian Diamonds and Contexts of Research

Faced with the threat of massive financial losses due to global boycotts, multinational diamond companies, to improve their reputation, adhere to forms of certification such as the Kimberley Process (KP). It was created in 2003 to ensure that the sale of rough stones exported from signatory partners did not financially support civil wars or acts of international terrorism (Schlosser 2013a). However, this certification does not ensure that fraud in the illicit sale of diamonds is slowed down as it traces rough diamonds to the cleaning process, but not to the final clients (Armano 2023). Between the late 1990s and early 2000s, while the African blood diamonds scandal informed public opinion (D'Angelo 2019), Canada became actively involved in the KP. In January 2004, Canada assumed the chairmanship of the KP, and the Government of the Northwest Territories (GNWT) began labelling stones mined in the Northwest Territories (NWT) as ethical diamonds. Indeed, Canada has been internationally recognised, since the early 2000s, as the exporter of diamonds mined in absolute legality, as it is a nation free of civil wars (Armano, Joy 2022b). Specifically, diamonds mined in the NWT have a certification of ethicality, a laser engraving with a maple leaf, the symbol of Canada, and an alphanumeric code that traces the diamond's journey from the place of extraction to the place of sale by entering the alphanumeric code in a special database. Traceability is based on blockchain technology. In particular, the traceability and ethical certification of Canadian diamonds are part of a plan called the GNWT Diamond Certification Program through which the Government of NWT (GNWT) guarantees that all diamonds mined in the NWT are also cut and polished within the region. In addition, through this programme, the regional government allows various stakeholders along the supply chain, from polishers and carvers in the region to jewellers around the world, to use specific brands, the best known of which are Polar Bear Diamonds. The certification of Canadian diamonds and the possibility of tracing the stone, support a growing ideology of expanding new mining frontiers that engage in ethical business practices in the jewellery and electronics sectors (Schlosser 2013a). The tracking system and certification of diamonds are, moreover, supported by the narrative based on a binary ontological configuration that pits Canadian ethical diamonds against African blood diamonds (Armano, Joy 2021) which elevates, by invoking transparent mining governance through the use of digital

tracking technologies and ethical certification, Canadian mines as "model mines" (Calvão et al. 2021).

This paper provides an analysis, based on ethnographic research, of cultural interpretations of the global storytelling of Canadian ethical diamonds, given by different subjects, belonging to diverse socio-cultural, economic, and political contexts, including staff of mining companies, indigenous communities, jewellers, and consumers. My field research took place at the two, opposite ends of the diamond supply chain, in the Canadian Northwest Territories (NWT) where the mines and mining companies are located and in two jewellery stores in Italy, one in Milan and one in Bologna, that sell Canadian ethical diamonds. Through incrementing multi-sited and multi-scale ethnographic research, I progressively became aware that "friction" (Tsing 2005) typified my research field. Specifically, once I arrived in Yellowknife, the capital of the NWT, I found that some local actors – mine workers, many indigenous people, and multinational staff – did not want to talk about mining for diamonds, presumably for fear of exposing themselves on issues they considered sensitive and contestable. This reticence to speak about these topics made me reflect on the fact that mining companies only communicate certain information to global consumers, geographically and culturally distant from the mining context in which it emerged, through brochures and advertising content that promotes trust in ethical and sustainable mining practices. In the meantime, at the other end of the supply chain, I found that Italian consumers and jewellers acculturate a niche luxury product using the narrative of ethical diamonds. They apply the familiar frame of organic food produced in Italy, which is associated with careful, respectful, and high-quality processing to Canadian diamonds. Thus, in this study, the lens of "friction" highlights the discrepancies within global storytelling around Canadian diamonds, particularly between the diamonds' certification and local interpretations of it along the supply chain. The concept of "friction" has, therefore, guided the speculative considerations of this research which emerged in the space "between the traps of the universal and the culturally specific" (Tsing 2005, p. 1) in which it was possible to configure how pieces of the world unconsciously but simultaneously interact with each other through friction. Within this framework, I theorized a conceptual construct that I called the "Process of Argumentative Aphasia" by highlighting the controversial alternations between advertising narratives accompanying Canadian diamonds along the supply chain, the more or less explicit reticences to talk about mining diamonds of the interlocutors in the extractive context, and the hopes of the Italian consumers that the storytelling on the ethical practices for extracting diamonds corresponded to the truth. Specifically, the Process of Argumentative Aphasia provided me with a conceptual tool to explain how the discourses of the participants in the research on Canadian ethical diamonds were becoming increasingly metaphorically unpronounceable (Stoler 2011) and, therefore, misaligned with the official storytelling as I approached the mining context; whereas moving towards the sales contexts, the argumentative contents of the jewellers' and

consumers' speeches were more aligned with the contents of the global advertising narratives on diamonds mined in Canada.

Thus, this research highlights on the material effects that global narratives about ethical and sustainable diamond mining practices in Canada create, at the local level, in the production and sales contexts. The study follows the path of the advertising narrative on Canadian ethical diamonds from the NWT to the two Italian jewellery companies and shows how the narrative about the ethical practices of the diamond mining industry functions in direct proportion to the distance from the extractive sites.

The Two Extremities of the Supply Chain

In 2019, I stayed in the NWT for my ethnographic research. Within the borders of this region, and especially in Yellowknife, I collected various data sets through archival research and through informal interviews with geologists and native people who worked and lived in the NWT. In general, it was extremely complex, if not, in some cases, impossible, to build conversations centred on the topic of ethical diamonds and, in general, on the mining industry with people in the Canadian region. Especially, managers of multinational corporations, trustees of public departments that financed geological exploration in the region, and miners openly avoided talking about these topics. However, from conversations with some geologists, I was able to understand the physical characteristics of the region. Indeed, they shared with me some information from their research and showed me documents, videos, and samples of rocks rich in kimberlite deposits from which diamonds are extracted. Geologists often underlined the importance of following safety protocols to enter the mine and confirm that these rules always apply in extractive contexts such as the Canadian ones compared to artisanal mining realities such as the African ones. They explained how the typical working day in the mines was punctuated by "highly ritualised risk-avoidance practices" (Appel 2012: 700). Workers are obliged to wear protective clothing (helmets, safety shoes, etc.), must not be present in the tunnels when the machinery to extract the rock is in action, and it is forbidden to drink alcohol during work shifts. Although I was not allowed to visit the mines, and thus see if these rules were respected, the geologists assured me that the workers carefully followed these rules. During the conversations, they also introduced the distinction between African blood diamonds and Canadian ethical diamonds by re-proposing the contents of the advertising narratives that accompany Canadian diamonds in global markets.

Thanks to people belonging to the native communities of the Tłı̨chǫ and Dene, including some elders and a former miner, I was able to understand various interpretations that the natives give to the diamond industry in the region. Nonetheless, these people generally preferred to avoid talking about mining multinationals and ethical diamonds. Instead, they chose to focus primarily on the symbolic interaction that native populations weave with the land. For native

communities, the land involves an active vision that includes caring for both the well-being of the community and the well-being of the places where indigenous live and carry out their subsistence activities. The bond between indigenous people and their land is still commemorated today through "land payment" practices that consist of offering tobacco, or other medicinal herbs, to a specific site. Specifically, the elders explained how this practice reaffirms the values of respect between humans, animals, and the land, and the importance of passing down this mutual solidarity from generation to generation along with legends, songs, and stories. From their words, I could understand how some members of native communities, such as the elders, might view the extractive industry. The mining activity, they explained, has caused environmental degradation, increased levels of soil and lake water pollution, and has also altered the migrations of certain animal species, such as caribou, on which indigenous people base their diet (Hall 2015). In this sense, some indigenous people consider mining as a kind of theft of their land. Although the link between territory and indigenous culture still represents a system in which mental, cultural, and environmental states are interconnected, some indigenous argued that currently with the absorption of many indigenous people into diamond mining, this profound knowledge is crumbling. In their view, extractive industry destabilizes the subsistence economy as well as the dialogical relationship that the natives have with the environment (Hall 2002).

Nevertheless, not all indigenous people in the NWT share the same vision of the mining industry. The former miner affirmed that the mining industry has offered greater employment opportunities for the native communities in the region; however, he pointed out that the percentage of non-indigenous miners who advance in their careers is higher than native miners. He also stated that it is easier for single indigenous people to be a miner as working in the mine forces workers to be away from home for several consecutive days a month.

In Yellowknife, I therefore met people reluctant to talk about mining or ethical diamonds in different ways. Managers of multinational corporations and miners explicitly avoided broaching these topics with me. Geologists repeated the global publicity narratives about Canadian ethical diamonds but did not provide details about the work in the mines (i.e. how recruitment took place, what the relationships were among workers and between workers and multinationals, etc.). In contrast, indigenous people's testimonies showed heterogeneous views of the mining industry, which is interpreted both as a threat to the environment and the maintenance of native culture and as an economic opportunity for young people.

In Yellowknife, I also conducted archival research at The Prince of Wales Northern Heritage Center. The sources I analyzed included company reports, geological reports and reports prepared by indigenous teams that assisted mining multinationals in analyzing environmental impacts caused by the extractive industry. Additional information was obtained from local newspaper articles from the mid-1990s to the present day describing the increased diamond mining in the region. I

also collected documents that recounted the development of mining industrialization in the NWT and the founding of Yellowknife as an extractive city. Thanks to these sources, I could reconstruct the history of the town, understanding that it was founded in 1934 following the opening of gold mines. However, the diamond rush in the NWT began much later. It was not until 1998, following intensive geological exploration, that Ekati, the region's first diamond mine, was opened in the centre of Lac de Gras. Not far from Ekati, Diavik, Gahcho Kué Diamond Mine, and Snap Lake Mine were also opened in 2003. Like Ekati, these mines are located about 300 km from Yellowknife. Specifically, diamond mines have been opened in the territory inhabited by the Dene and Tłı̨ chǫ indigenous communities with whom multinational mining companies enter into contracts called "Impact and Benefit Agreements" (Hall 2015). In particular, these agreements provide for hiring quotas for young native miners, access to training courses for the acquisition of labour skills, joint ventures between multinationals and indigenous companies for cleaning and carving diamonds, and financial compensation for opening mines in the territories of the two communities. Through these contracts, the industry also finances environmental monitoring operations to assess the polluting impacts of mining on water, soil, and air. The peculiarity of Impact and Benefit Agreements is their confidentiality. The content of these contracts is only accessible to the signatories, which include executives of multinational mining companies and political representatives of indigenous communities. Although the employment of indigenous personnel in the mining industry has improved the economic conditions of the region's native groups, there are countless disputes between multinational companies and indigenous people regarding the exploitation and management of the land where the Dene and Tłı̨ chǫ continue to carry out their traditional subsistence activities (Armano 2022). GNWT values mining companies and indigenous groups as stakeholders. This means that, legally, natives and corporations have the same right to the use of land. However, this resulted in land expropriation for mining exploitation at the expense of the indigenous people who, invoking the Aboriginal right included in the Constitution, pursue, often with little success, legal attempts to claim their land management rights (Schlosser 2013a). Therefore, as I perceived during my ethnographic research in the NWT, strategies for building relationships between multinationals and indigenous communities in the region may be challenging. This aspect poses the difficulty of providing an unambiguous definition of "responsible mining" that can meet the needs of different sociocultural groups living near the mines (Calvão et al. 2021).

The difficulty of multinationals in building relationships with Indigenous communities in the NWT (due, for example, to the environmental impacts witnessed by natives since the opening of the mines) and the increase in layoffs of many miners (Indigenous and non-Indigenous) due to mining debts in recent years is not reflected in the ethical narratives that accompany Canadian diamonds as they make their way along the supply chain to international outlets. This was particularly evident in the

two Italian jewellery shops, called Belloni and Righi stores, where owners Francesco and Simone, as well as their customers, were very confident in the ethical and sustainable extractive practices of the multinationals in Canada, which, according to all those interviewed in the shops, are committed to supporting indigenous communities economically and protecting workers and the fragile environment of the north.

I began ethnographic research in the Italian shops when I returned from Canada in July 2020 until June 2021. As the store proprietor Francesco Belloni explained to me, Belloni Jewellers is a historic shop in the heart of Milan, Italy. It was opened in 1948 by the grandfather of the current owner. Until the 1970s, the jeweller's business consisted mainly of repairing watches. In 2005, Francesco decided, to donate part of his income from jewellery sales to cancer associations. At the time, the jeweller was buying African diamonds. In 2006, Francesco wanted to donate to Survival International (a human rights organisation founded in London in 1969), but Survival rejected the offer because the proceeds came from the sale of diamonds. At the time, the organization was boycotting Diamond Trading Company and De Beers' mining operations in Botswana, as the mining companies had expropriated Bushmen from their land where diamond deposits had been found. Survival International suggested to Francesco the alternative of ethical Canadian diamonds from the NWT. As a result, since 2006, the jeweller has been selling not only African diamonds but mainly diamonds mined in Canada, which he continues to source from a supplier in Toronto. A large part of his clientele immediately recognized Canadian diamonds as stones free from illicit sales channels and immediately began to appreciate the certification of ethicality and the ability to trace the stones through the supply chain (Armano, Joy 2021). Francesco noted that the Canadian origin of diamonds continues to be one of the key traits for consumers he calls "ethical customers" who are distinguished from other customers who frequent his shop and are less sensitive to the ethical and sustainable issues of mining practices. Belloni Jewellers sells Canadian diamonds under the "Ethical Diamonds" brand created by Francesco Belloni, who, over the past decade, has, in turn, become a supplier of diamonds mined in Canada to other Italian and European jewellers. Simone Righi, the owner of Righi Jewellery Store in Bologna, was Belloni's first customer who creates the jewellery that he then sells. Simone Righi opened his jewellery shop in Bologna in the second half of the 1980s. In 2010 he got in touch with Francesco Belloni as Simone was also eager to offer his customers luxury brands that were more in line with his sustainable lifestyle. Simone now sources ethical Fairmined certified gold extracted in South America and ethical Canadian diamonds with which he makes his jewellery collections. He introduced these new luxury brands not only to those who want to buy ethical diamonds and gold but also to those interested in a unique handmade piece of jewellery. Francesco Belloni and Simone Righi, from the first conversations, always maintained a strong distinction between their ethical clients and their other customers, who were interested in contributing, thanks to their virtuous purchases,

to save the planet and defend people, including children, employed in mining activities in other parts of the world (Armano 2023).

Thanks to jewellers and their customers' extreme helpfulness, I was able to create a network of twenty-three clients, mainly men who purchased a piece of jewellery for their fiancées or wives. All of them were extremely willing to share with me their views on how they imagined Canadian mines and how they interpreted the global storytelling of ethical diamonds.

THE PROCESS OF ARGUMENTATIVE APHASIA IN THE FRICTIONAL NARRATIVE BETWEEN THE TWO EXTREMITIES OF THE ETHICAL DIAMOND SUPPLY CHAIN

Although some authors (Sterman, Sweeney 2007) argue that people's silence and reticence indicate a gap in their understanding of certain social or political facts, this research shows that potential interlocutors encountered in the NWT avoided talking about mining practices and ethical diamonds because they seemed to be aware of something that I, as a foreign researcher, was unaware of. Eviatar Zerubavel describes this phenomenon with the concept of a "conspiracy of silence" (2006). Highlighting the difference between knowing and acknowledging, the author underlines the fundamental but under-theorised tension between personal awareness and public discourse. Whether generated by fear, shame, embarrassment, pain, etc., the conspiracy of silence revolves around what the sociologist calls "open secrets" which are known to all members of a group, but represent uncomfortable truths that may, in some cases, emerge despite the attempt to conceal them. Zerubavel argues that silence, co-denial, or reticence to talk about something implies a collective and collaborative effort on the part of both the generator and the receiver of the information who acts as a facilitator to keep something unrevealed. Silence and reluctance are undoubtedly objects of study that require the creation of ever-new methods and theoretical constructs capable of highlighting elements of social, political, and identity conflict. In this study, to analyse the reluctance of interlocutors to talk about mining practices and ethical diamonds in the mining context and the willingness instead to talk about them in the two jewellery shops, I constructed the concept of the Process of Argumentative Aphasia.

From a theoretical point of view, the analytical framework of the Process of Argumentative Aphasia is built by interconnecting the concepts of aphasia in linguistics, namely the inability to express one's thoughts and feelings (Jakobson 1971); Stoler's (2011) concept of "colonial aphasia" explains, within post-colonial debates, the misrecognition of accounts of marginalised social groups in relation to dominant rhetorics of power; and friction (Tsing 2005), understood as "global encounters across differences" (p.3).

Conceptually, the Process of Argumentative Aphasia indicates discursive alignments or misalignments, by subjects in a cultural context, concerning official

rhetorics. Argumentative processes of aphasia thus form in the frictional meeting zone between dominant global narratives, often supported and accepted by elites (Stoler 2011), and local interpretations of them. Such forms of acculturation may therefore take the form of total adherence to the contents of such narratives or criticism or various forms of inhibition in discussing the main arguments of the official storytelling.

In this research, by using the Process of Argumentative Aphasia I was able to analyse how global advertising discourses about ethical Canadian diamonds are reorganised within the mining and sales contexts into local sub-discourses that give rise to misalignments or argumentative alignments of interlocutors concerning the official storytelling about diamonds mined in Canada. Specifically, in this study, the narrative about the ethics of Canadian mining practices that accompany diamonds in the global market gives rise to argumentative misalignments with the official marketing storytelling that becomes more marked as one approaches the mining context. Whereas the closer one gets to the retail context, the argumentations on Canadian diamonds of jewellers and their customers are more aligned with the global narrative. This reflection raises the crucial question of the division between knowledge and real context, the distance between which seems to be bridged by the trust of consumers in narratives of ethical mining practices to extract Canadian diamonds in which the traceability and certification of stones assume a central role. Moreover, in the mining context, managers of multinationals, indigenous people and miners are more reticent to talk about mining and ethical diamonds than geologists, who are instead explicitly aligned with official diamond narratives.

Misalignments and Argumentative Alignments as Compared to the Global Advertising Narrative on Canadian Ethical Diamonds in a Mining Context

In this study, my interlocutors who avoided talking about mining practices and ethical diamonds in the extractive context prompted me to analyse the social uses of this reluctance or silence. I then attempted to formulate some hypotheses about the silence of managers of companies, and reticence to talk about mining topics on the part of those who were not bound to the multinationals through an employment relationship such as indigenous people. I then began to reflect on the relationship between the codes of conduct that the companies impose on their employees, trying to understand how this relationship might be influenced by their cultural backgrounds, subjective experiences, job specialization and how social uses of silence or reticence can arise from these relationships.

Managers of multinationals explicitly avoided talking about mining and diamonds. Scholars (Harlos 2016) argue that it is important for companies to select the information they want to communicate publicly in order to build a good reputation and, conversely, not to disseminate information that could undermine their image. In this research, therefore, by not letting information out of company boundaries, managers seemed to assume the role of gatekeepers within multinational

corporations. Thanks to conversations I had with indigenous elders, I could, in general, understand that native people use forms of silence for different reasons. Social uses of silence in Canadian indigenous communities can be, for example, considered an important component in preparing for an encounter. Elders are silent for a few minutes before telling a story to create a kind of empathic space with their listeners. It is also used by the natives as a protective practice toward researchers or external consultants whom they consider potentially harmful to the integrity and social well-being of the community (Hall 2015). Dene and Tłı̨chǫ would often recount their experience in the 1970s when two anthropologists, June Helm and Beryl Gillespie, conducted their field research in communities published in a book called "Subarctic" (1981). Here, the anthropologists claimed that the Dene became extinct during a flu epidemic in 1928. This misinterpretation was promptly contested by the Dene. Nevertheless, this information spread among academics, causing reactions of discomfort from native populations when interacting with foreign researchers. However, when I asked the elders to talk to me about the evolution of the mining industry in the region, they preferred avoiding that topic and focusing on their personal history or the traditional teachings passed on by the elders.

Like the multinational managers, miners were also reluctant to talk about ethical diamonds or mining-related topics. In the NWT, it is essential to consider two employment patterns, that of temporary employment for most indigenous employees, and that of permanent employment for other workers from various parts of Canada and the United States. However, in relation to both categories of workers, I have been able to notice several more or less reluctant behaviours in explaining whether the mining multinationals really acted ethically towards the workers. Important was the only testimony I was able to gather from an indigenous former miner who, contrary to what appears in some existing studies, did not provide an exclusively victim-oriented interpretation of indigenous workers employed in diamond mines (Hall 2022). As this former miner explained, mining work must always be considered in relation to the experiences of individual workers:

> "Multinationals are ethical with workers, but the ethicality must be adapted to the individual life situations of miners. I am neither married nor do I have children. I can easily work in the mine and work overtime. My married friends had to quit their jobs in the mines because they could no longer see their children grow up and their wives were always alone. The mine can give you a lot but also take a lot away from you. The miners employed in the mines have to be away from home two consecutive weeks a month" (Peter, name invented to protect the privacy of the informant working in the mines in the NWT, Tłı̨chǫ Community)

The diamond mines in the NWT are in the middle of the Lac the Gras and they are only accessible by air from Yellowknife or Edmonton, or by ice road during the coldest months of the year. As the interviewee reported, being away from home can

be difficult for a married indigenous miner with children, who have to balance work, family, and community life.

Apart from this valuable testimony, other indigenous workers or non-indigenous miners refused to talk about diamonds, their experiences in the mine, and their relationship with the multinationals. However, some geologists assumed different attitudes and, in addition to sharing some data from their research concerning the geological characteristics of the region, when they spoke of Canadian ethical diamonds, they re-proposed the global advertising narrative that opposed them to African blood diamonds.

How could, thus, the Process of Argumentative Aphasia explain the creation of argumentative alignments or misalignments between global storytelling on ethical diamonds and local sub-discussions in the Canadian region? On the basis of data collected in the Canadian mining context, four main attitudes can be identified with reference to managers, indigenous people not employed in the mine, miners (indigenous and non-indigenous) and geologists. In relation to the first group, one can interpret the silence of managers by linking it to the importance of controlling information from leaking out of the company. If external actors (stakeholders, NGOs, journalists, researchers) capture information that the corporation avoids disseminating and that is outside the official marketing narratives, the public reputation of the company could be threatened. Regarding the second group, it could be hypothesised that indigenous avoided talking about mining practices and diamonds because of a general mistrust of foreign researchers, especially anthropologists, who might spread information disapproved by the natives. The miners, on the other hand, were allegedly reticent for fear of creating conflict with the multinationals. Mining companies in the NWT organise job training to impart rules of conduct to be assumed in the work context for all miners in front of superiors (Caron et al. 2019). Despite the impossibility of access to this information by those who are excluded from the mining environment, it could be assumed that rules of conduct also condition the relationships between workers and people outside the mining working environment. Rules of conduct, which concern all those who are hired by multinationals, can also be present in the employment contract. This would consequently favour an airtight working environment which prevents the leakage of information and therefore the establishment of social uses of reluctance to talk about specific topics.

Furthermore, for both miners and geologists, we could categorize their misalignment or argumentative alignment with the ethical diamond advertising narrative through "defensive reticence" practices which may take different forms. One could put forward the hypothesis that what equates all workers in the extractive context is a concern to expose themselves. If miners could use "fearful reticence" that pushes them to be reluctant to speak for fear of possible negative consequences in the workplace, geologists could use "reticence masked by the publicity narrative" to convince the external researcher of the positive socio-economic effects introduced

by multinationals. In general, the geologists' attitude could be related to their willingness to be the spokespersons for a corporate social responsibility that promotes the ethical commitments of multinationals towards local workers. The Process of Argumentative Aphasia thus shows that geologists, by re-proposing the content of marketing storytelling, were explicitly aligned with it; while other actors created misalignments that formed in the frictional encounter between global narratives about ethical Canadian diamonds and their reluctance and silence in talking about the stones.

Another interesting aspect was to discover, during the research in the archives in Yellowknife, no direct reference to the ethical dimensions of Canadian diamonds in the local newspapers, company reports, and indigenous suppliers' reports. The documents analysed spoke mainly of the productive mining performance within the region. Furthermore, in some documents, it was written "clean diamonds" instead of "ethical diamonds". The substitution of some words allows for interesting interpretative considerations on the use of local terms to describe diamonds. Various terminologies used to talk about the stones could be used to address different types of audiences. While the term "ethical diamond" seems to be used to address global consumers and to talk about corporate responsibility towards local mining workers and communities, the term "clean diamond" could be used to address NWT residents to talk about greater attention to the environmental impacts that the extractive industry can cause locally. Therefore, if "ethical" seems to refer mostly to issues related to human rights, the term "clean" instead seems to have the purpose of reassuring residents about the effects caused by soil and water pollution due to mining.

Argumentative Alignments to the Global Advertising Narrative on Canadian Ethical Diamonds by the Sample of Whistleblowers Interviewed in Italian Jewellers

In the context of retailing, Italian jewellers clarified that consumers were focused mainly on the aspects of ethical certification and diamond traceability, which proved to be important themes that increased customer confidence in a narrative that extolled sustainable practices to extract diamonds and safety protocols towards miners. Thus, Italian clients immediately distinguished the Canadian diamond from other stones whose material characteristics and mine of origin could not be known because they were not traced. During the interviews, the jewellers and their customers stated that they did not appreciate artisanal mining techniques, which they perceived as a form of illegal excavation. In this way they implicitly built a sort of linear and, at the same time opposite, link with underdeveloped African extractive contexts rich in non-renewable resources, as well as imaginaries of Africa as synonymous with violence and primitivism (D'Angelo 2019).

Although Canadian diamonds are more expensive than other diamonds mined elsewhere because of the warranty given by their ethical certification, the customers

interviewed opted for this choice because they felt that they could control, through the possibility of using the traceability, information about the stone along the blockchain. It was also interesting to discover, during the interviews with Italian jewellers and consumers, a particular process of acculturation of stones mined in Canada. Specifically, most consumers, when purchasing a Canadian diamond, superimposed conceptual categories of products known to them, such as Italian organic food, to understand, and thus acculturate a niche product:

> "In Italy, many people pay attention to products bearing the Made in Italy label. This aspect is particularly true, not only for products such as clothes or luxury goods, but above all for the choice of food. Many Italians prefer organic foods produced in Italy because they provide a guarantee of product control in terms of quality" (Luca, 49 years old, entrepreneur, Monza).

Such overlapping was used especially when sellers and customers raised the certification and traceability of both the stone and the food, which evoked careful, respectful and high-quality processing (Armano 2023).

In addition to providing a guarantee of corporate responsibility to be respectful towards workers, who, according to Italian customers, received a good salary and were protected by safety protocols in the mine, the ethical certification of Canadian diamonds also allowed consumers to construct imaginaries of Canadian extractive contexts. The concept of "ethics", in this case, was also used to refer not only to the material qualities of the diamond but also to describe as they imagined a set of geographical characteristics that evoked the almost pristine northern environment (regardless of industrialisation) in which Canadian diamonds are mined.

However, while the clients highlighted solidarity with labour and social groups potentially exploited by the extractive industries, most jewellery customers did not describe themselves as diamond connoisseurs. Some of them also did not even know that the ethical Canadian diamonds they were buying were mined in the NWT and did not verify the stone's information by entering the alphanumeric code into the database. This gap seemed to be filled by the imagination of many customers to whom the jewellers told the "diamond story" in their shop. Asked by a customer how he envisioned Canadian mines, he replied:

> "I find it difficult to imagine Canadian mines, but I am very familiar with African mines. Often in films, you see that in Africa even children are employed alongside women and men working in mines in conditions that are very dangerous for their health. I can say that in mines in Canada, the situation is completely different. Canada is a Western country. It is like in Europe, where you have to respect protocols at work and you cannot exploit workers" (Mattia, 43 years old, entrepreneur, Reggio Emilia).

Some clients constructed a stereotypical representation of the mining environment and work and the information they gathered came mainly from popular sources such as documentaries, websites, activist articles, and films (Armano, Joy

2022b). Although jewellers narrated the main contents of the global advertising storytelling on Canadian diamonds, which contrasted them with African blood diamonds, the stories that jewellers told their customers also seemed to possess characteristics of vagueness. Specifically, the story about Canadian ethical diamonds told by jewellers to their clients in the shops seemed to contain in effect schematic, non-detailed references to the production context, industry practices, and state policies, thus ensuring the functionality of the narrative. As with any kind of story, jewellers, in narrating Canadian diamonds, felt free to include references to their personal experience, only on the condition of a "conventionalization" (Beduschi 1987: 51) with ethical and sustainable values, without breaking the thread of the main content that was to be conveyed to consumers. Perhaps the most interesting, as well as the contradictory, aspect that emerged in the Italian jewellery stores was the fact that customers, despite having the possibility of tracing the stone (thanks to the use of blockchain technology), seemed little interested in knowing the mine where the diamond they were buying had been extracted and its material characteristics. It seemed, in this way, that they were content simply to enjoy the *fabula*.

To explain the construction of imaginaries about ethical and sustainable business practices, in accordance with Hannah Appel (2012), I reflected on the process of *disentanglement* carried out by actors far from the production context who literally "detach" (p. 693), i.e. symbolically separate, industry from the concrete place of production. At this point, considerations arise on the relationship between narratives, constructions of imagery, and situational context. Specifically, a situational context is that set of pragmatic conditions, external to the narrated fact, which guide its production, reception, and interpretation. The situational context thus defines the actual spatiotemporal coordinates within which a narrative is told (Beduschi 1987). Adapting this definition to the present research, we can assume that the ethical narrative that accompanies the Canadian diamond takes on meaning only within the situational context of the point of sale and in relation, as we have seen, to high-level professional categories in the mining context such as for example, geologists. Focusing attention on the context of retailing, at this point, the crucial question is: How is the Process of Argumentative Aphasia useful in explaining argumentative alignments of Italian jewellers and consumers to the official storytelling on Canadian ethical diamonds? In Italian retailing contexts, the themes present in the global narrative on Canadian ethical diamonds regarding the importance of boycotting unethical mining practices in poor countries, adhering to values of responsibility and compassion that jewellers and consumers had towards economically disadvantaged people exploited in onerous and dangerous jobs in the mines. Jewellers and their clients explicitly expressed their willingness to be both "benefactors", supporting ethical and sustainable mining practices, and "boycotters" of illegal mining and trading systems (Armano, Joy 2022a). In addition to contrasting Canadian ethical diamonds with African diamonds, my interlocutors also revealed a desire to receive some sort of gratitude in return:

> "When I buy jewellery set with Canadian diamonds, despite the fact that they cost more, I feel that I too have contributed, as much as I can, to mitigate difficult situations that many people are forced to endure in mining-rich but economically poor environments. If I buy diamonds that don't finance wars and don't cause people to despair, I feel psychologically better. (...) I can be confident about what I buy because Canadian diamonds are certified and I can even know the mine where they were extracted because I can track them" (Umberto, 52 years old, bank clerk, Milan).

Like Umberto, other customers described their moral choice behind the purchase of Canadian diamonds also as a response to appease a sense of guilt. Customers said they felt guilty when their luxury consumption, which often denotes nonessential and extravagant spending, contradicted their ethical values. This sentiment emerged as the financial means allowed them to own a luxury item obtained from the (often exploited) labour force of other disadvantaged socio-economic groups. In this regard, the advertising narrative on Canadian diamonds played an essential role in reassuring them by offering them an alternative solution thanks to diamonds which, being certified, gave them the perception of the application of safety protocols in mines and environmental protection. Therefore, the advertising narration of ethical diamonds created, in the context of retailing, local sub-discussions that highlight an alignment between global storytelling and the values of the interlocutors which was based, above all, on the possibility of being able to contribute, one's own sustainable luxury purchases, to divert consumption by supporting forms of mining industrialisation that are attentive to human rights and, on the other hand, disallowing illegal mining practices.

Using the theoretical lens of the Process of Argumentative Aphasia, we can therefore say that the alignment with the content of the official advertising narrative about ethical Canadian diamonds that emerged in the discourses of Italian jewellers and consumers allowed them to construct an "ethical imaginary" that contrasted Canadian mines with the unethical African mines. However, we can also argue that although they aligned themselves with the official publicity storytelling, they were unaware, partly due to their geographical distance from the mines in the NWT, of the presence of argumentative misalignments in the Canadian mining context with respect to the global narrative about stones.

CONCLUSIONS

In this multi-sited, multi-scale ethnographic research that interconnects two different and geographically distant socio-cultural and economic contexts, the concept of the Process of Argumentative Aphasia offers an interpretation of the frictional encounters between the global advertising content of Canadian ethical diamonds and argumentative misalignments and alignments with respect to it. These misalignments and alignments, embedded in local sub-discourses, unfolded along a continuum that ranged from a willingness to discuss ethical Canadian diamonds and

sustainable mining, as was the case in the retailing contexts, to more or less explicit reluctance to talk about these issues by people in the mining context. From a theoretical perspective, as I approached the mining context, the argumentative misalignments with official storytelling increased, while as I moved towards the retailing contexts, jewellers and consumers became aligned with global advertising content.

The Argumentative Aphasia Process provides anthropologists with a theoretical tool that is also useful for other research in the area of non-renewable resources. Some studies state that extractive industries often tend to publicly conceal information, or provide generic information, on the environmental impacts and damage caused by extraction to communities living near mines or pipelines (Calvão et al. 2021). On the contrary, companies, seeking to enhance their reputation, would show ethical and sustainable governance practices in their reports that aim to protect the environment and the well-being of residents. At the same time, however, when companies address global consumers, they would use linguistic styles and narrative content that disguise the possible criticalities that exist in the production contexts and local realities in which they operate. The Argumentative Aphasia Process can therefore help to understand, in the frictional encounter between corporate narratives and local interpretations of them, the cultural aspects that facilitate or inhibit the acculturation processes of official storytelling.

In general, the Process of Argumentative Aphasia can be exploited by anthropologists to understand how power dynamics within the corporate world may inhibit employees from exposing themselves on issues that would be deemed uncomfortable by top management and that the latter want to publicly conceal so as not to threaten corporate reputation. In this way, insights can be developed into the implicit rules on what can be said and what is best avoided in working environments. In addition, comparisons can be developed between argumentative alignments and misalignments between how the company presents itself to consumers and how their perceptions may differ from those of the employees.

ABOUT THE AUTHORS

Linda Armano is an anthropologist (linda.armano@unive.it). She has been awarded by the European Commission with a Marie Curie Fellowship. Her research interests concern sustainable luxury, Global Value Chains, Circular economy, and the Anthropology of Mining. She is a researcher at the University of Venice and collaborates with Italian marketing companies.

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Catalyzing Organizations

Organizational structures, incentive systems, objectives, and cultures often conflict—impeding design, innovation, and change. Presentations in this session are case studies of projects that overcame these systemic barriers and created better outcomes.

Discussant: Michael Thomas*, Space Doctors*

Friction in Equity Work for Product Development

A Human-First Approach to Getting Unstuck

MARINA KOBAYASHI, *Google*
NOELLE EASTERDAY, *Google*
REALITY CANTY, PHD, *Google*
ALEXANDRE ZANONI, *Google*

As part of an internal UX team, researchers at a multinational tech corporation were tasked with improving the Equity of products through product development practices within the company. However, the researchers had to first define the space and assess the friction their colleagues felt when trying to do Equity work. What followed was an ethnographic "noticing" of colleagues feeling "stuck" followed by an accounting of social and organizational blockages at three levels: institutional, interpersonal, and intrapersonal. But to even capture these signals, the researchers themselves had to first get "unstuck" and reframe our UX-centric understanding of internal "users" back to ethnographic-centric "humans". Based on the findings of mixed ethnographic and UX methods, this case study explores the multidimensionality of Equity work for the individual, questions the boundaries of what "counts" within the professional sphere, and argues for new strategies for Diversity, Equity, and Inclusion (DEI) solutioning. The first half of the paper lays out the fraught landscape of product building for Equity and the challenges practitioners face when business constraints intersect with top-down DEI goals. How did we account for the many causes of friction in Equity work? How were our colleagues blocked, slowed down, or paused within the minutiae of their day-to-day? The second half identifies opportunities for Equity-focused UX praxis within organizational structure. How did storytelling create space for productive discomfort? What were the calls-to-action for individual contributors, managers, and leadership? And how did we define success within our own work? In the end, this case study demonstrates how, when experiencing friction ourselves, we got unstuck by stepping back and simply asking ourselves, "Why is this so hard [for us right now]?"

OUR ETHNOGRAPHIC CONTEXT

We are user experience researchers (UXRs) at Google, on a central Product Inclusion & Equity team (fka "Equity Engineering") under a broader 'Products for All' (P4A) division that aims to improve the equity, inclusion, accessibility, and internationalization of current and future products.

A CATALYST FOR EQUITY

In May 2020, the death of George Floyd triggered a global reckoning on race, equity, and justice in the public sphere. Leaders and organizations galvanized by "a newfound institutional commitment to equity … initiated discussions about how the team might better incorporate the needs and perspectives of underrepresented user

groups within our product development cycle…" (Mendonca, 2022). Enter the Equity Engineering (EE) team at Google – the team was originally founded in 2018 to prevent the launch of products or features that create or perpetuate potential inequities through "engineering" (e.g. innovating) a way forward. Our team is particularly tasked with improving the Equity of products through product development practices within the company.

AN EARLY SUCCESS WITH A NEW WAY OF KNOWING

At that same time, we were engaged on a project that became a methodological provocation, challenging the "correctness" of industry researchers' over-reliance on "representative" sampling and evaluative research methods. Members of our team orchestrated a comparative study where in-parallel, the product team UXR followed an oft-relied upon "representative" recruiting process with our central UX infrastructure team's participant database (n=12), while the Equity Engineering team UXR elected to take "practical significance" focus with a community-participatory approach – reaching out to Employee Resource Groups (ERGs) to recruit members of an intersectional identity group that has historically seen disadvantaged experiences in tech (n=23). Both groups participated in in-depth interviews (IDIs) that used the same protocol and questions, but the results of that comparative study laid bare a stark contrast in the lived experiences of the ERG members and the underlying motivations that would prompt them to engage with the target Critical User Journey (CUJ). The Equity Engineering team recommended halting product development due to the major differences in findings across the two study groups. Despite the relatively small sample size and comparing across the "representative" group vs the "most impacted" group, stakeholders were persuaded by the findings from the non-traditional ERG recruited sample – and agreed to the recommended course to halt development. As UXRs, we reflected on the dramatic contrast in findings between the groups – the study revealed how woefully insufficient representative sampling alone could be, and like Mendonca, the practical challenges for operationalizing diversity and inclusion in research, representing people in personas, and developing KPIs.

EVOLVING EQUITY-BUILDING EFFORTS

Two years into the EE team's nascent existence, the team had more requests to consult than our small (>10 person) team could field. The team began a strategic transition to scale equity-building by turning inward to reflexively discover product teams' challenges in the space, then developing methods, approaches, and tools to be applied in product development. Part of this mandate includes digging deeper into how tech workers do Equity work: how they begin, how they incorporate Equity considerations into designing products at different stages of development, and how

they navigate Equity goals as part of a team aiming to improve the lives of end users through technology.

Our identity as a horizontal team focused on the thematic problem-space of "equity" began to take shape. Our "designs" would be used by product teams within our own company – those internal teams are our "users". From mid-2021 to late-2022 our team engaged directly with "priority partners" (select product teams within our PA) for a series of weeks-long consultations (Bargna and Santanera 2020). In our early research efforts, we worked with partner teams at the company to improve the Equity of their products. One tool we utilized was called an Equity Posture Assessment. This included a hands-on workshopping to determine where the product needed improvement and was followed with guided evaluation of potential solutions. As we facilitated these sessions, the researchers would discuss how the sessions felt difficult – "like walking in sand" – despite the usefulness of the workshop framework. We brainstormed modifications and revisions to the workshop structure as well as the content. Despite our efforts to provide a flexible and tailored framework to elicit smooth and straightforward product improvement, we still noticed "stuckness". At that point, we asked ourselves, "Why is this so hard?" and "Why are we all feeling so stuck?" This was an honest question, a stepping back to gain perspective. We, as researchers, needed to get ourselves "unstuck".

EQUIPPED WITH ETHNOGRAPHY

This corporate context is what led to "short-term" (Pink and Morgan 2013) in-situ observations. In the midst of these limited engagements, embedded in select product team activities, our researchers reflected on the "show" and recognized the need to adopt an "ethnographic sensibility". We were primed to leverage the immersive nature of our partnerships to observe, unpack, and interpret the challenges and pain points of the teams endeavoring to ensure the equity of their products (Simons and Smith 2019, 341). Those observations and perspectives on the priority partners – were immediately an effective alternative way of developing deep "knowing" of the product team dynamics and mental models. Our ethnographic "noticing" (Kim 2017) of frictions – where Googlers felt "stuck" when attempting to do equity work emerged as a profound revelation. Through "anthropology *of* design, that takes design as its object of study… anthropology of design can shed new light on design as a social process" (Murphy 2016)

When we first came together as a research unit, we set out to define the Equity space itself within the context of a tech organization. We recognized that there are end users, consumers, who use and are affected by the products we bring to market. However, what was also important to recognize was the community of users that comprise the product development teams themselves: the program managers, engineers, UX designers, etc. To address Equity in tech, industry must address the

needs of two overarching user populations: external consumers and internal product developers. The former requires intentional consideration of the diverse identities and context humans around the world bring to their tech usage; the latter requires pathways to building for Equity within industry processes. In other words, in order for products to be experienced in equitable ways by consumers, tech workers have to build Equitable design and features into the products themselves.

To account for what we had overlooked, we reframed our UX-centric characterization of our tech worker colleagues away from the known aspects of their professional identities. Yes, we were all working for a tech company, building products for billions of people around the world. However, we were people with emotions and thoughts beyond the nuts and bolts of our job roles. We recognized that our colleagues were feeling "stuck" too. That they were, perhaps, unfamiliar with how to discuss Equity issues with subject matter experts, or unsure how to utilize inclusive language, or scared they might get it wrong. Professionals are people who do their job. They are people who carry their past experiences, social programming, and somatic responses to the workplace. And in order to help people build Equity into products, we must account for the human aspects of doing this work.

FORTIFIED ETHNOGRAPHY

Yet, we were concerned that the findings of frictions recognized through the practice of "noticing" would appear too "anecdotal," lacking in validity, or significance. Would leadership agree to infrastructure and organizational investment to address frictions that impede equity work?

Since "friction is a function of the everyday" (EPIC2023 Theme) and can permeate many forms of work – what might set apart the friction employees experience in doing equity work? To better understand the frictions we had observed, we decided to gather quantitative data in addition to the qualitative observational data. We devised a survey to triangulate between these different ways of knowing. The study aimed to assess the frictions our colleagues were experiencing when trying to do Equity work. We defined "friction" as "the conditions that cause you to pause, slow down, feel stuck, or be blocked." Producing the survey started with simply writing down all the frictions that we had observed, experienced ourselves, or surmised based on constraints that are felt cross-industry. That exercise alone produced over 20 friction points. In Q2/Q3 2021, we ran a small-scale pilot survey among our closest product partner teams (N=15). The data showed that everyone was experiencing friction and in multiple ways. Colleagues reported frictions in the survey and through coding them, we identified multiple levels of frictions occurring: intrapersonal, interpersonal, and institutional.

We were able to build upon the pilot survey and included 34 different friction points that respondents could select. Respondents were given checkboxes that were

organized by a theme per page (Equity fundamentals, potential harm, resourcing, business constraints, burn out, and other). After analyzing these initial signals, we expanded the study to launch a large-scale survey (n=472). The survey was nine questions long and consisted of check boxes and open-ended text boxes. We distributed the survey among cross-functional product team roles (such as product manager, software engineer, UX designer, etc.). To promote everyone sharing their most candid responses, we configured the survey to collect responses anonymously. Our research objectives were 1) capture at what points tech workers feel "stuck" in the Equity building process, 2) segment along job roles to understand different friction points, and 3) determine where friction is felt most so our team can target problem solving.

EQUITY WORK FRICTIONS

Based on the findings of mixed ethnographic and UX methods, this case study explores the multidimensionality of Equity work for the individual, questions the boundaries of what "counts" within the professional sphere, and argues for new strategies for Diversity, Equity, and Inclusion (DEI) solutioning. We "...work as researchers, facilitators and co-creators of the design process, in multidisciplinary and transdisciplinary projects" (Bargna and Santanera 2020, p.29)

One other important insight was that frictions could be categorized into three levels: intrapersonal, interpersonal, and institutional. **Intrapersonal** frictions are emotional and personal. We found that tech workers are often reluctant to take the first step (for many reasons) toward Equity building. **Interpersonal** frictions are practical and social. We found that tech workers are often inexperienced in navigating Equity work with colleagues. **Institutional** frictions are organizational and structural. There are often industry-related constraints and practices that slow Equity building. In recognizing these different levels we were able to better recognize how frictions were showing up both inside and outside our workshopping.

KEY FINDINGS

Just as general frictions are expected and permeate many aspects of work, 98% of Googlers reported experiencing friction when trying to do Equity work. On closer examination, we categorized the frictions Googlers reported experiencing and of the 34 different frictions listed, the most selected friction categories were: competing business constraints, being unfamiliar with Equity fundamentals, lack of resourcing, concern of potential harm, and burn out. On average, Googlers reported experiencing 9.6 friction points out of the 34 listed frictions. Some of the top ranked frictions were about not knowing how to start equity work, being unfamiliar with thinking about equity issues, inexperience prioritizing Equity amongst other requirements, not knowing how to measure Equity, and not knowing how to do it

"right." A commonality of these top ranked frictions is that they can form a "friction funnel" effectively diverting or deterring would-be Equity-builders from applying equity practices on their product teams.

ABOUT THE AUTHORS

Marina Kobayashi is a User Experience Researcher Manager on the central Product Inclusion & Equity UX team (PIE-UX) at Google, working out of San Francisco, CA. Prior to the PIE-UX team, she worked on products ranging from hardware to video games to software, websites, and apps.

Noelle Easterday is a cultural anthropologist, educator, and a UXR of Product Inclusion & Equity at Google. Noelle advances ethnographic approaches to Equity-building, centering the everydayness of human experiences in her work. She's committed to pragmatic, data-driven solutioning for individual contributors alongside systems-level interventions. When not working, you'll find Noelle in the garden with her kitty, Turnip.

Real Canty is committed to building equitable socio-technical interactions through inclusive design practices. As Senior UX Researcher of Product Inclusion & Equity at Google, he is intentional about the voice and verve in his thought and expression. At the heart of his presence is a pluralistic appreciation for the potential that multiple knowledge systems hold for developing equitable and just futures for all living things.

Alexandre Zanoni is a Google UX Researcher dedicated to making technology more accessible. He has a bachelor's degree in social sciences and a master's degree in Sociology from the Federal University of Paraná in Brazil, where he is currently a doctoral student researching the emergence of solidarities in digital work platforms. In 2021, he received the Best Book Award from the Brazilian Association of Labor Studies. He is interested in the intersection of work, culture, and the digital life.

NOTES

Special thanks to our colleagues on the Product Inclusion & Equity team for supporting our pursuit of such research opportunities as ethnography of equity-building within our workforce. Thank you to the wider Alphabet UX team and our cross-functional inter-disciplinary product team partners for inspiring us to conduct our research on Frictions in Equity Work and for responding to our survey.

The opinions and views expressed in this case study are those of the authors alone. The authors of this case study do not represent the official position of the employer (Google).

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A Tale of Two Frictions: Building Ethical Software Solutions by Challenging Tech's Obsession with Efficiency

The Case of Salesforce Nonprofit Fundraising Teams

AZIRIA D. RODRIGUEZ ARCE, *Salesforce*

The enterprise technology ethos of efficiency biases corporate software development towards seamlessness. What happens when that ethos contradicts its clients' philosophies, needs, or goals? This case study presents a tale of two frictions. The first part chronicles our product team's dedication to streamlining our nonprofit client's organizational procedures and the unexpected challenges we encountered trying to achieve change. The second part describes my experience as a Latina researcher and how I used ethnographic research to smooth out internal process frictions, ultimately helping our teams find better solutions for our clients. This case study illustrates the productive and critical role that friction can play. It also provides frameworks and tools that empower researchers to challenge their teams and advocate for change within them.

THE PROFIT-PURPOSE CONUNDRUM

Friction Ties the Knot

In recent years, the software development industry has portrayed itself as capable of harmonizing profit and social purpose (Corduneanu, 2022). Similarly, nonprofit organizations have started adopting characteristics from their for-profit counterparts, emphasizing profitability and sustainability (Maier, Meyer, and Steinbereithner, 2016). On the surface, it might appear that there is no inherent friction between these sectors, but a closer examination reveals a complex relationship.

The friction between profit and purpose for these institutions becomes evident when comparing their primary objectives. The software industry prioritizes efficiency to increase profit (Alptraum, 2017), while the nonprofit sector's primary goal is social change (INCITE!, 2017).

SOFTWARE DEVELOPMENT INDUSTRY VS. NONPROFIT SECTOR

Purpose, Ethos, Raison d'etre:

The divergent objectives between these sectors create significant differences in their organizational structures. Software companies favor hierarchical governance structures and functional capabilities to optimize product delivery (CodeRiders, 2022), while nonprofits, driven by collectivist beliefs, resist corporate-style hierarchy (Baines, 2010).

Operational processes and team compositions also vary. Software companies employ intricate production processes that rely on specialized teams for efficiency and profit maximization (Sypnopsys, 2023). Nonprofits, instead, operate within five functional areas: executive strategy, administration, fundraising, program delivery, and evaluation, which often focus on serving their communities. (Ensor, 2023).

At its core, the software industry's ethos revolves around efficiency and profit, akin to the principles of the Ford production model (Gupta & Kohli, 2006). In contrast, nonprofits are dedicated to pursuing the 'common good,' employing efficiency, metrics, and sustainability to achieve meaningful societal change (Abramson, 2019). This case study delves into the inherent frictions that arise when a B2B for-profit software company provides services and solutions to the nonprofit sector. Moreover, it offers an in-depth exploration of my lived experience as a researcher of color, navigating these frictions and leveraging research to uncover points of resistance and collaboration between these seemingly disparate sectors.

SALESFORCE AND NONPROFIT FRICTIONS

Salesforce

Given that, I became a Lead Researcher at Salesforce. Salesforce primarily specializes in building Customer Relationship Management (CRM) solutions. These solutions assist organizations in managing interactions with existing and potential customers during sales (Mailchimp, 2023). Nevertheless, Salesforce has successfully extended the scope of CRM beyond the sales process, believing that customers can harness CRM to optimize any business process. Part of that scope expansion entailed developing targeted industry solutions, which led to the development of Salesforce Nonprofit Cloud, the team I eventually joined.

Nonprofit Cloud Team

Salesforce's Nonprofit Cloud comprises a suite of products designed to assist nonprofit organizations in fundraising, marketing, measuring, and fulfilling their missions. The Nonprofit Cloud teams operate within Salesforce's broader organizational structure, with dedicated scrum teams comprised of product managers, engineers, designers, researchers, and content writers responsible for delivering features tailored to the nonprofit industry's needs.

As the lead researcher for the Cloud, my role involved coordinating research priorities between engineering, product management, and design scrum teams to help them improve software solutions.

Fundraising Solution and Assumptions

In the fall of 2022, the Nonprofit Cloud Fundraising team-initiated work that sought to enhance fundraising efforts for Salesforce nonprofit customers. The team proposed two solutions:

The first proposed solution involved assisting nonprofit organizations in ***creating a donor dashboard,*** allowing them to showcase how individual contributions by their donors impacted the organization's goals.

The second proposed solution sought to improve our customer's internal organizational processes. While Salesforce's Nonprofit Cloud suite offers a centralized platform for storing fundraising and program delivery data, numerous nonprofit organizations keep these data types separate due to their organizational structures. Fundraising teams typically have access to fundraising data, while program teams access program-related data.

Informed by client conversations, a Product Manager hypothesized that we could help our customers if we adjusted our Cloud's data models to ***establish an automated pipeline connecting fundraising and program data.*** If this hypothesis were validated, fundraising employees would benefit from automated access to the program delivery information they need to craft convincing donation requests.

The product manager theorized that by keeping these data types separate nonprofit organizations were introducing inefficiencies that prevented fundraising departments from being as productive as possible. They speculated that these solutions would give our Cloud a competitive edge over similar products.

However, these proposed strategic solutions were based on institutional and industry knowledge rather than current actionable research. When the rest of the product team began exploring the solutions, it became clear we needed an even deeper understanding of the processes we were trying to improve for our customers. Confronted by these challenges, the team brought me on board to assess the validity of their solutions.

Research: Contextual Inquiry and Service Blueprinting as a Practice of Friction

The role of a researcher is to determine if 'research validation' is needed when a product team requests research to validate their hypothesis. A significant aspect of the researcher's role is introducing friction into the team's well-established processes by challenging assumptions and advocating for the customer's experience.

Considering the proposed solutions, I wondered whether 'validation' research was necessary for our team. Was simply proving the validity or accuracy of the proposed ideas enough? Or would the team benefit from gathering a more profound understanding of our customer's problems?

I suggested transitioning from a research validation exercise to a research discovery approach. I aimed to conduct research that could offer insights into our customers' identities, the evolution of their governance and operational structures, their main objectives and tasks, and the tools they employ to achieve them. By gaining a deep understanding of our nonprofit customers' internal operations, we could ensure the relevance of the proposed solutions.

Research Methods

I employed a series of ethnographic methodologies divided into three stages to answer these questions.

First, I initiated my research by extensively exploring organizational development and maturity concepts within nonprofit organizations. This involved a comprehensive review of over 20 secondary research sources. The literature review aimed to establish a common vocabulary and identify conceptual commonalities related to organizational maturity, structure, and governance, providing the team with a robust conceptual foundation.

Next, I coordinated and conducted eleven sixty-minute semi-structured interviews with Chief Executive Officers from different nonprofit organizations. The selection criteria for these eleven represented organizations were based on several factors, including employee size, projected revenue, and organizational mission. These criteria represented some variables I aimed to explore to understand our customers. This approach allowed me to assess whether those variables influenced the organizational structure, functional distribution, governance practices, and inter-departmental collaboration methods used to achieve their missions and goals.

Finally, I completed four service blueprint exercises involving department managers and day-to-day employees in the functional areas I had identified through the semi-structured interviews. Although I had identified five functional areas, I focused on the four most relevant to improving the team's solutions: Fundraising, Programs, Volunteers, and Monitoring & Evaluation. These service blueprint exercises provided invaluable insights into how goal setting, functional structures, governance, and interdepartmental collaboration worked from the perspective of those engaged in the day-to-day tactical work of nonprofit organizations.

Insights

The research uncovered some powerful insights. Through the research process, I learned that the two strategy solutions proposed by the team couldn't be implemented as we initially thought.

Insight 1

The team's initial idea of helping Salesforce nonprofit customers ***create a donor dashboard*** that allowed them to showcase individual contributions by their donors

couldn't be implemented as originally envisioned. While speaking to nonprofit fundraising and program management professionals, I learned that the regulatory complexity of nonprofit accounting and funds distributions makes it challenging to keep track of individual giving and connect it to organizational impact. Donation intake and funds designation legislation forces nonprofit organizations to keep multiple complex accounting systems in place to comply with government regulations. Additionally, measuring and evaluating program participation impact is often time-consuming and complex. Both systems are operated by different departments or areas within an organization and tying them together cannot be solved by incorporating new features displayed on a donor portal; it would require organizational or legislative changes.

Insight 2

The team's second idea, which considered adapting our Cloud's data models to provide an ***automated data pipeline*** between fundraising and program data for our clients, presented equally significant problems. Through research, I discovered that implementing an internal data-sharing solution would raise considerable ethical concerns from our nonprofit customers' perspectives. After consulting with nonprofit program managers, I found that employees in program delivery departments are hesitant to easily share information with fundraising employees because they are committed to protecting their constituents. They frequently expressed ethical concerns about the potential misuse and mischaracterization of their constituent's impact data. Exploitation could occur if fundraisers recklessly used constituent data narratives to artificially generate sympathies to increase charitable donations. They believe fundraising departments could easily exploit the data, even if their intentions were well-meaning. As a result, they prefer to remain in control of how and when the program data is shared; an internally automated data pipeline would strip them of that control.

I was aware the implications of these findings would impact my team's proposed solutions and, in general, our product development processes. I understood that the product team proposals' core intent was to help our nonprofit customers be more efficient and transparent when requesting donations. They had theorized that eliminating those inefficiencies could improve our client's processes. However, the research revealed that pursuing these product solution paths could compromise our customer's success.

As a researcher, I understood my responsibility to convey these insights and encourage my team to adopt some research-based recommendations.

RESEARCHER TOOLS

Challenging Strongly Held Beliefs

Challenging the status quo in a large corporate organization can be daunting. I had to assess when and how to disclose the research findings, considering how the issues found with their proposed ideas might impact the team's product development processes. A company's maturity, research culture, and team's internal dynamics will influence how introducing friction to those institutional processes is perceived.

Salesforce has always encouraged its employees to be bold truth-tellers. Nevertheless, "bold truth-telling" is not done in a contextual vacuum. Hence, as a researcher, I used a series of frameworks to ensure I delivered truthful insights while staying true to my identity and ethics.

Empowering Frameworks

Like any research project, I initiated the socialization process of my insights by conducting a ***preliminary consequence scan***. I utilized Doteveryone's (2019) and Salesforce's Rob Katz's (2020) consequence scanning frameworks, which consist of three key questions:

1. Whatwerethesefeaturesintendedandunintendedconsequences?
2. What are the positive consequences we want to focus on?
3. What are the consequences we want to mitigate?

The research findings showed that the proposed solutions carried potential implementation challenges and ethical implications that could pose risks for our customers' constituents. Consequence scanning allowed me to evaluate those research findings *vis-à-vis* my team's proposed solutions, which, in turn, allowed me to build a case for my recommendations.

After I evaluated my findings for potential impact, I performed a ***power positionality assessment***. I embarked on these positionality assessment efforts because scientific studies have shown that interpersonal, cultural, and institutional power dynamics affect how change and friction are received, perceived, and adopted (Boonstra & Bennebroek, 1998). These power dynamics matter even more if you are a woman with a racialized body. When it comes to delivering bad news, women of color experience the burden of being perceived as "angry," which in the workplace often leads to worse performance evaluations and assessments of leadership capability (Motro, Evans, Ellis, Benson, 2022).

Given that a big part of research work is entangled with perception, women of color often have to contend with the possibility of bias seeping through. Being

relatively new to my team, I always felt like straddling a fine line between delivering insights and risking alienation.

While Salesforce has made great strides in developing a more inclusive and multicultural workplace, like many other software development companies, it is still primarily a white male-dominated space. As a woman of color, understanding my positionality within this type of space is helpful, especially when I'm about to have a difficult conversation. To better understand my positionality, I built a positionality assessment diagram using Patricia Collins's Matrix of Domination framework (Collins, 1990) and Kimberle Crenshaw's work on Intersectionality (Crenshaw, 1993).

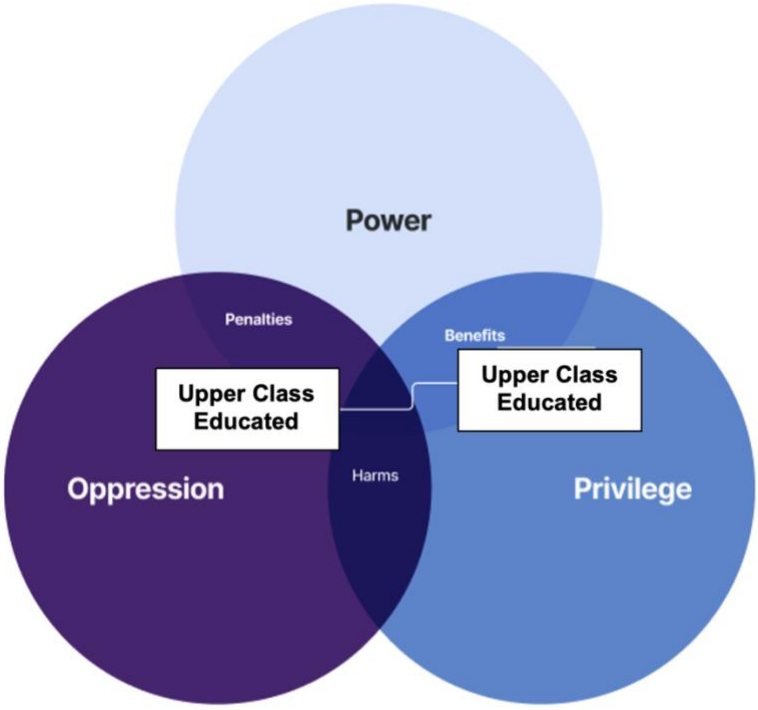

Figure 1. Positionality Assessment Diagram inspired by Patricia Collin's and Kimberle Crenshaw's work on oppression and intersectionality.

Understanding myself and my team within the Matrix of Domination allows me to explore my vulnerabilities and recognize my privileges in a corporate space. This knowledge clarifies power dynamics and empowers me to advocate for myself & Salesforce nonprofit customers. (Costanza-Chock, 2018). In a perfect world, I would not have to do these types of analyses, but-- in reality-- living in my body means these are some of the issues I consider when performing my day-to-day job.

Lastly, after assessing for consequence and power positionality, I performed an ***inquiry-advocacy assessment***.

Shelbi Gomez developed the inquiry-advocacy matrix at Adobe (https://business.adobe.com/blog/basics/inquiry-advocacy-matrix) to help leaders be effective communicators. The matrix teaches leaders to adapt their communication styles strategically depending on their goals. I used Adobe's inquiry-advocacy matrix to define my objectives and select the most effective communication approach to achieve them. In this case, I wanted to assert myself and influence my team to improve on their proposed solutions. To do so, I called a meeting with key decision-makers and stakeholders. During the meeting I used a process map to outline and discuss the ethical implications of creating a connective data pipeline for enhancing fundraiser donations, as well as the technical and legal implications of assisting customers in developing a donor dashboard solution.

Recommendations

As part of the presentation, I provided general recommendations, allowing them to review their proposed solutions.

Recommendation 1

I recommended the team explore other avenues to address fundraising transactions for the proposed donor dashboard solution with other cross-functional teams. The research revealed that individual transactions might not be trackable. Still, we could link fundraising efforts to organizational impact for our customers if we took the time to think of potential solutions from other perspectives.

Recommendation 2

For the proposed data pipeline solution that would allow organizations to link fundraising and program data, I suggested that the team include a security and permission structure on the program and delivery database that would allow program managers to control data sharing. The data pipeline would still make the data-sharing processes more "efficient" while protecting constituent data.

ORGANIZATIONAL IMPACT

Product, Feature, and Team Impact

Introducing research as friction allowed the team to understand the complexity and consequences of their proposals. After my presentation, they took some time to consider the findings. Then, the product team decided to forgo their proposed ideas, opting instead to dedicate more time to understanding our customer's problems via a dedicated working group focused on uncovering our nonprofit clients' data sharing, interoperability, and integration issues. This team would now be in charge of exploring that fundraising to programs pipeline to develop better solutions. They

also decided to segment and deprioritize the proposed features from the product roadmap so that they could dedicate more time to testing future solutions.

This case study demonstrates how friction can drive positive product development and enhance product processes. It also serves as a valuable reminder that what we perceive as 'inefficiency' may not always be so and that we should be mindful of what makes our customers different. Employing ethnographic research methods and humanistic frameworks helped me rediscover our customer's uniqueness while, at the same time, fostering trust and collaboration within my team, which, in turn, ensured our product integrity.

Using frameworks as reflective tools for self-assessment helped me better understand the research findings, the proposed solutions, my team, and my institutional goals from a holistic perspective. The consequence scanning assessment helped me build my argument concerning product proposal impact; the power positionality assessment helped me understand my vulnerabilities and the power dynamics within my team; it also empowered me to leverage my privilege to advocate for nonprofit customers. The inquiry-advocacy matrix helped me assess my comfort with becoming an advocate for our Cloud's users. It gave me the tools to drive an intelligent and influential conversation with my team. Ultimately, leveraging ethnographic research helped me produce influential and timely research insights, navigate friction, and provide my team with the knowledge that resulted in ethically built solutions that meet our customers' needs.

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Friction into Traction

A Case Study of Frictions in Strategic Ethnography

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This case study highlights the transformative power of strategic ethnography in shaping frameworks that gain traction within organizations, facilitated by three frictions: research friction, analysis friction, and path-to-action friction. By embracing frictions as productive movements, we not only witnessed the profound impact of ethnographic research on the future of a product category but also experienced the convergence of previously competing divisions, fostering innovation, collaboration, and organizational growth. Through an analysis of these frictions, we distill lessons for applied ethnography and highlight the importance of embracing rather than avoiding frictions in today's business settings.

INTRODUCTION

In an era when digital interconnectivity strives to eradicate friction in favor of seamless experiences, the relevance of friction might seem paradoxical. However, Anna Tsing's *Friction: An Ethnography of Global Connection* (2005) offers an alternative perspective. Tsing argues that friction, far from being an aberration, is an indispensable force for comprehending the complexities woven into our social worlds. This case study is about an ethnographic project that defined a 'North Star' (or guiding vision) and strategy for a product group. Rather than focusing on the strengths of ethnography in this context, we center on friction's role in the project's success. We discovered that embracing friction was pivotal to the impact of ethnographic work, and we demonstrate the value and influence of friction on project outcomes.

Tsing (2005) sees friction as the profound interplay of untamed entanglements, unexpected encounters, and disruptions that emerge when diverse entities collide and interact within complex systems. This involves the conflicts, paradoxes, and complications arising from encounters between disparate actors, cultures, and practices. Using the metaphor of a wheel on the road or sticks rubbed together to create fire, Tsing highlights friction's constructive force (Tsing 2006:5-6). Our case study is set on this philosophical foundation exploring friction's transformative role in strategic ethnography projects. We illuminate how, within the context of strategic ethnography, friction enhances our understanding of interactions among client groups, interlocutors, consultants, and stakeholders [1] and supports the development of product strategies that have impact and traction within a company.

This case study supports a reimagining of friction—those intricate knots that challenge conventional pathways but hold the potential to lead us to uncharted territories of creativity and impact. Just as Paul Dourish's "embodied interaction"

(2004) delves into technology's resonance with human practices rather than its mere existence, friction too can be seen as an *active agent* of transformation. This case study encourages readers to see the potential of these tensions, and outlines three distinct types of friction: research, analysis, and path-to-action friction.

We look back on our project with an emphasis on the pivotal role each of the frictions played in magnifying the transformative power of ethnography to shape strategy. The research friction revolved around varied and misaligned interpretations of the role and value of ethnography and prompted discussions about incremental improvement versus transformative evolution of a product category through research. Embracing this friction fostered collaboration, new alliances, and research outputs that were ultimately more valued. The analysis friction emerged when the insights initially portrayed one product within the company's portfolio as more favorable than another product, problematizing the company's worldview. Instead of sidestepping this tension, we harnessed it for innovative thought. Collective discussions led to reimagining both products in the portfolio and their connections in people's lives. The path-to-action friction appeared when disseminating research findings and implications, as the actionable directives differed from traditional frameworks and stakeholders' existing agendas. We worked to translate insights into actionable steps for each faction that were distinct yet complementary, strengthening relationships along the way. The process underscored friction's potential to deliver impact in ways that are both adaptable and long-lasting.

This case study further dissects each friction, revealing the associated challenges, methodologies, and successful transformation or traction that arose. Through this retrospective, frictions evolve from obstacles to anticipated phenomena, to be actively sought out and engaged with in subsequent ethnographic pursuits. This exploration augments the growing body of knowledge regarding ethnography's practical relevance in the corporate domain. Fundamentally, we argue that in strategic ethnography, frictions help insights and recommendations gain traction, shaping organizational trajectories anew.

The backdrop of this exploration is ChipCo, a company navigating a strategic shift in desktop computer manufacturing processes. This change prompted a new North Star (also known as a guiding vision) for the desktop division.

CASE STUDY: STATIONARY COMPUTING

Context and Background

Established in the 1960s, ChipCo stands as a vanguard semiconductor chip manufacturer, known for its relentless commitment to innovation and technological advancement. Its strategic focus on Moore's Law has consistently propelled it to the forefront of silicon technology, catalyzing revolutions in computing power and fueling the evolution of an array of devices, from personal computers to AI systems.

Nonetheless, ChipCo finds itself navigating a rapidly evolving technological ecosystem. To retain its competitive edge, ChipCo made a strategic pivot, consolidating its desktop product manufacturing with the client computing architecture (focused on end-users of devices) rather than with the server architecture. This strategic decision stemmed from observing waning consumer interest in desktops, the growing encroachment of competitors into higher-end markets (particularly among gamers and specialized professionals in fields like science and creativity), and the status of laptops as indispensable tools for professionals on the move thanks to advancements in technology, enhanced portability, and evolving consumer preferences.

Sensing the urgent need for reinvention in a changing landscape, ChipCo's internal ethnographic research team sought a path forward, and enlisted the expertise of ReD Associates—an external organization that applies the social sciences and humanities to strategic business questions. The aim of the project was to define a new North Star for ChipCo's Desktop Group that would provide direction for the division and stimulate innovation. The case is an example of the interplay across consultancy, various internal teams, corporate actions and values, and the broader societal context.

Research and Analysis

We sought to define what the future vision of the desktop could be, by studying a human phenomenon that was agnostic of a specific product category and instead was a 'verb'—an experience that the ethnographer could observe and participate in —namely, *computing in place*. This meant that both the act of 'computing' with and within a machine, and the physical environment in which the computing was taking place, were critical elements of participant-observation.

To move past understandings of the product category today, we designed the fieldwork so that we were exploring with each of our participants a set of tangential forces of change that could potentially redefine the role of the desktop—forces that indirectly intersected with the phenomenon of computing in place. This included sustainability, the rise of hybrid work, the proliferation of personal technological devices, the changing designation of space in the home due to the COVID-19 pandemic, among other forces. This list of forces came from an initial framing phase in which we conducted desk research, interviewed experts on technology and changing work and family life across cultures, and synthesized prior knowledge from previous projects with related themes.

Informed by this framing, we spent time with 16 individuals from China and the United States with an equal gender distribution. Our aim was to understand the nuances and intricacies of their life views and practices with computers. We met with people who use their computing devices in contexts where both high workload computing and a designated place for computing matter to them. We recruited diversely across professional and recreational *computing in place*, and shared and

personal use of the machine, to understand the similarities and differences across a range of potential purchasers and users. Within this diverse group, twelve participants identified as primarily desktop users, while four were secondarily desktop users. Participants were provided with detailed information about the research and gave their informed consent to participate. Steps were taken to ensure the confidentiality and anonymity of the participants during data analysis and reporting, including not using any photographs of participants' faces.

We conducted a mix of in-person in-context sessions and remote sessions with screensharing to observe computing practices. To ensure a comprehensive understanding of participants lifeways, perceptions, and practices of desktop usage, we spent several hours observing and conversing with each participant in their computing spaces, spanning various scenarios of work and recreation. We engaged in tours of their physical and digital environments to gain contextual insights and conducted detailed walkthroughs of their computing use-cases and workflows. We encouraged participants to share their material culture through show-and-tell sessions, which provided invaluable context to their desktop setups and usage patterns. To capture the essence of their computing experiences, participants were requested to maintain photo diaries and computing diaries, chronicling their daily interactions with desktop computers. These diaries, along with our observations, allowed us to immerse ourselves in their lives.

We went beyond the workflows and tasks people were doing with their machines, contextualizing these actions with broader aspects of their lives—their values, hopes, struggles, across various domains of life in which a computer, fixed in place, might intersect. We studied the social ecology around computing in place—the individual 'owner' of the machine (if there was one owner, sometimes there was not), the collectives of people who decided on and used the machine (e.g. family members, co-workers), the other devices and objects that were connected to the machine, the activities and interactions that took place around it, and the broader societal discourses that shaped decision-making about computing.

Researchers collected visual and written data (i.e., fieldnotes, photographs, video, transcripts) from observation, tours, walkthroughs, material culture show-and-tell, photo diaries, computing diaries, and expert interviews. We conducted analysis using both top-down and bottom-up approaches. Top-down meant we were answering questions that came from stakeholder priorities surfaced in framing phase, and bottom-up meant we were observing the patterns and insights across the participants' lifeways, and compute-in-place behaviors and perceptions. We paid special attention to discrepancies between what participants said versus what they did, and what they did across different situations.

One of our key analytical approaches was to identify gaps and asymmetries across our various inputs of data, including an as-is synthesis of assumptions, hypotheses, and unknowns from ChipCo's side, expert perspectives from academia and industry, and the fieldwork itself. Drawing from ChipCo's previous research,

including 12 prior projects, we built upon existing knowledge, to avoid duplication and ensure the study's novelty. By adopting this approach, we were able to gain insights into the meanings and practices people have around desktop computers and how these devices have or have not become integral to the lives of individuals in China and the United States.

Findings

In our fieldwork, we observed the tensions that people encountered in their day-to-day life, and the compromises that they needed to make. Christine, an architect we met in Shanghai, found herself disillusioned with her profession after years of training, but she couldn't quit her job because of her financial responsibilities. Jonah, an employee at a human resources company in New York, now found himself working from home which he shared with his in-laws. Nadia, a start-up founder in the Bay Area, was struggling to juggle personal ambitions with the demands of her family. In this context, being able to compute in adaptable and flexible ways was a necessity. Christine needed to take her computer home with her, to meet her deadlines. Jonah needed to compute from his kitchen table, because his son and his in-laws occupied the quieter spaces of the house. Nadia needed to prop her computer up on an empty plate at a café nearby to focus, because her husband and kids didn't take her start-up dreams seriously at home.

Alongside the need for adaptable computing, we observed people also *desired* to do their computing in ways that were dedicated and intentional, and the place in which this computing happened was crucial to its intentionality. Jonah, for example, tired of getting relegated to different spaces in the home to do his work, purchased a high-end computer and accessories and carved out a corner of his son's room in which he could get his work done (though he did have to share it with his son for gaming, when he was off the clock). We observed this across use-cases: personal or shared, work or leisure. Take Zeng in Shanghai, for example. She had recently quit her high-pressure job because she wanted a job that allowed her to dedicate more time to her family. Alongside this change, she purchased a family desktop, gave it a dedicated space in the home, and it became where she, her husband, son, and parents all came together for various activities like watching a basketball game, teaching her son to dance, or ordering supplies for the home. Vince, an independent videographer and music producer in the U.S., purchased a high-end workstation computer to signal to his clients that he "was worth what they pay, they can't do this at home." For both Zeng and Vince, the desktop form-factor became an embodiment of new priorities.

Framework and Direction

Through ethnography, we observed the necessity for adaptability alongside the desire for intentionality, when it came to computing. This set the stage for a framework that put these types of computing, which could each be done with a

variety of form factors, features, and accessories, in relation to one another—not in competition but complementary. We analyzed what people were *trying* to do with their intentional computing set-ups today, distinct from when they *needed* to compute in flexible adaptable ways (e.g. on-the-go), to make the leap into what they might *ideally* be able to do. The North Star vision cut across use-cases and types of users and was a promise of deep commitment to one's purpose, in a chosen space, without compromise, whether it was a personal or shared endeavor, for fun or for productivity. The vision stressed the importance of presence and immersion, of providing an emblem that communicated one's worth, and of being a conduit for helping people to feel their very best. The desktop was the quintessential enabler of this vision.

Under this vision, we outlined five pillars or principles for what the desktop needed to do or provide, to support people with the intentional computing they were desiring alongside the adaptable computing they found themselves needing to do. With these pillars or principles also came a fundamental repositioning of the desktop—just as much in the minds of the Desktop Group as in the minds of future users—from a need-to-have commodity that ties people down to one place, to an aspirational want-to-have that gives them agency over a place.

One of our U.S. research participants, Vati, for example, was a high-powered executive at a bank. She had a range of devices she used throughout her day, including in her tricked-out 'internet of things' style home. She did not *need* a desktop for her work (she didn't need that much computing power for her job). But she *wanted* a desktop, and a dedicated space, to signal to herself and to others what she hoped to achieve in life, to present her best self in meetings, and to immerse herself in her tasks.

Beyond that, it was important for the Desktop Group to shift their thinking of the *desktop* as a singular object, to the *practice* of intentional computing through an ecosystem of devices and accessories working together to create the best possible experience. For one of our U.S. participants, Barbara, who was an aspiring podcaster, that ecosystem of devices and accessories included an external microphone, a ring light, and yoga blocks to prop up her tablet.

Outcomes and Impact

Through this study, we informed the future desktop platform technologies that correspond to people's values and practices around computing in the context of daily life. There were several meaningful areas of impact upon ChipCo which we outline here: strategic business plans, marketing communications, platform engineering, and internal organization.

The ethnographic project resulted in the development of the Desktop Product Group's new vision and strategic framework, which the management team adopted and which we outline in the learnings section below around frictions, how they adapted as well as adopted recommendations. This suggests that the findings from

the ethnographic research were recognized and valued by management, for their decision-making.

The adoption of the new strategic framework led to the development of new business plans for the next five years highlighting the direct influence the ethnographic project had on shaping the long-term goals and direction of the desktop management team. Moreover, the alignment of different teams within the Desktop Product Group around new business plans highlights the effectiveness of ethnographic research in creating a shared understanding and purpose.

Beyond the internal impact, the desktop team used the new framework to shape their external communication strategies when engaging with OEM partners (original equipment manufacturers who make the machines that use ChipCo technology) and participating in industry-related events. This suggests that the insights from the ethnographic project not only transformed internal operations but also influenced the way the corporation presented itself to external stakeholders.

Complementary to the marketing and communications impact, the findings of the ethnographic research inspired the platform engineering teams to develop new use cases and subsequent platform directions. The practical application of the research findings demonstrates relevance and effectiveness in driving innovation and product development at the engineering level.

Finally, although not directly connected to the report but the conversations happening around the report, one of the most interesting, tangential impacts of the ethnographic project was the merging of two previously competing divisions, laptops and desktops, into a unified unit. This organizational restructuring occurred along the lines of the framework developed through strategic ethnography, highlighting the transformative power of the research. As we outline in the sections below, friction in the findings revealed opportunities for synergy and collaboration between divisions.

Overall, the ethnographic project had effects on multiple levels within the corporation. These outcomes demonstrate the value of ethnographic research as a powerful tool for understanding complex dynamics, fostering innovation, and driving change within large organizations. Encountering and working with three frictions during the project ensured that the insights and recommendations gained traction.

THREE FRICTIONS TO TRACTION

In the previous section, we discussed the impacts our research project had on ChipCo. In this section, our focus shifts to three frictions that give the project's findings and outcomes traction: a research friction, an analysis friction, and a path-to-action friction. This section expands on the dualistic nature of each friction: the challenges they posed and the traction they generated. By delving deeper into the frictions, we aim to highlight the rich potential frictions have as drivers of innovation, new thinking, and transformative actions. While we encountered three

types of friction in this project, we suspect there are other kinds of frictions that exist in ethnographic work and see this as the start of a conversation.

Research Friction: Lack of Alignment on the Role and Value of Research

At the outset of the project, there was internal resistance to having an ethnographic research team conduct the project because, as one Desktop Group manager put it, "this is not a UX project; this is about strategy." The various teams within the Desktop Group were familiar with ethnography for user experience (UX) research: one of the consumer teams spent half a year creating new reference designs for the desktop after having done extensive user experience research around design requirements, consumer preferences, and detailed comparisons against competitive products. Other teams within the Desktop Group had conducted UX research about workplace performance with various workloads (from office worker to scientist to creator), as well as gaming workloads. User experience research, which included observation and participation in people's lives, was a standard practice in the group.

The crux of the friction lay in the diverse interpretations of the role and significance of ethnographic research. While one manager strongly advocating for the project had some exposure to ethnographic research and understood the range of potential outcomes and processes (both within and outside the scope of UX questions), most of the other managers and the general manager were less attuned to the differences in the approaches. When they read and heard 'ethnographic research' from the internal team proposing the work, they understood it to mean UX research, while the internal team meant a different process and set of outcomes.

Why This Friction Was Challenging

To the managers across teams in the Desktop Group, ethnography was a dive into user behaviors that culminated in tangible, actionable insights typically revolving around incremental improvements to product features, architectural designs, or marketing strategies. In essence, they were envisioning a detailed user-centric playbook that marketing, engineering, or design teams could immediately deploy.

However, the ambition for this ethnographic endeavor diverged from these expectations. Instead of focusing on the details of current user behavior and product tweaks, the aim was to chart a new strategic direction for the Desktop Group, effectively reframing and redefining the essence of the product category. This wasn't about refining what was already in play, but about reimagining its future. While the general manager of the Desktop Group overall agreed to the project's aims, particularly given the high-stakes situation in which the group needed an outside-in perspective on the product category as a whole, the in-the-moment interactions with various teams within the Group at the outset of the project revealed fundamental misalignments around the research we were embarking on and its outcomes.

Compounding this friction was the debate over the research's subject and the nature of the data collected. Those entrenched in the UX mindset expected granular data dissecting desktop use: metrics highlighting application usage, frequency, processor power, all meticulously segmented for identified market groups. In contrast, the researchers envisioned a broader canvas: our data would hopefully illuminate the lifeways of a diverse set of users, delve into the context of desktop usage (or non-usage), explore perceptions of value, and uncover the practices, both digital and non-digital, that shaped desktop interactions.

This problem could be described as one around stakeholder management [2]. Sam Ladner (2014), in her manual on practicing ethnography, highlights the importance of stakeholder management for the success of an ethnographic consultant's project on products. Joshua Dresner (2016) takes the classic argument that stakeholders need to be engaged in ethnographic inquiry itself for alignment and insight. Dexter Lidow (1999), writing about maximizing product success, emphasizes the importance of "all members having identical understanding of the project's mission and objects" (1999:9). He takes a more-or-less top-down approach to "aligning the ducks (all stakeholders)" for a successful project; in essence, getting compliance. We have found that on projects in which the stakeholders are from across several teams, alignment of this kind is unrealistic to strive for, or to assume. We instead take a pluralistic approach in that we assume that the perspectives of multiple parties are all important and do not have to exist without tensions. In projects in large organizations with big high-stakes ambitions, there is invariably a mix of common and competing interests and understandings. And unlike Dresner's guidance, we had too many stakeholders (approximately 30), and some too important or busy, to be involved in the ethnographic encounters or to internalize, at the outset, how our form of ethnography was different from the ethnography conducted in UX.

How We Worked with This Friction

Like Dresner, we see the researcher as a facilitator in the process of alignment, but we see alignment as lateral rather than top-down, and it is not one and done, but rather never done—it is a dynamic, iterative negotiation by which sufficient understanding or agreement is reached across individuals, groups, and organizations to enable the next action but not necessarily much more than that. The managers in the Desktop Group and the different teams putting together funds and resources for the project continued to have multiple definitions of ethnography and user experience research as the project kicked off. The underlying friction regarding the nature of UX and ethnography, and what they entail, remained unresolved at the outset.

On the part of the team conducting the work, it was clear *to us* at the outset what we were *not* doing as part of the research (granular data for incremental

improvements), and what we hoped the resultant impact of the work would be (a new vision for the product category), but because of the different meanings of ethnographic research, we needed to develop and articulate a more robust research design that would include familiar and useful elements to those who would receive aspects of the final outcomes and who at the outset had a different understanding of the role and value of the research.

We worked with different stakeholders to develop a robust recruiting strategy that had elements they were familiar with—a range of devices, recently purchased machines, representation of specific use cases. This ensured that the mix of participants in the ethnographic encounters would be as relevant to the stakeholders as the participants in the UX studies with which they were more familiar, while we also recruited for diversity across the elements we, as a research team, were interested in (which had more to do with general lifeways and experiences). We devised a hybrid notion of 'data' that involved detailed daily practices, as well as the broader context of everyday life, and provided direction for specific product and platform improvements *as a part of* the strategic action that accompanied the North Star. Our analysis focused much more on broader aspects of the data, but we gained stakeholder buy-in at the outset and during their participation in analysis, by ensuring that our ethnography was also collecting details about each participant that were more granular in nature, and focused on their computing workflows, and that we as researchers could readily answer any questions our stakeholders had about those aspects. Being able to construct a vision that encapsulated both gave credibility to the research while allowing it to focus on the strategic aspects.

While we included aspects that were table stakes or familiar to the different teams when it came to ethnography, we had to ensure that our focus in the analysis, the discussions, and in the deliverables, remained steadily on strategy. Articulating this to ourselves as a research team, and again and again to our stakeholders even as we were able to answer the more granular questions when asked, was a constant practice we needed to adopt. Though we did not change our focus, holding space for different understandings of ethnography at the outset did change our work and some of our outputs. This made the research more time-intensive but made buy-in to the work throughout the project easier.

Resultant Traction

Through continued stakeholder management, the project proceeded and fostered new partnerships both within and between organizations. Conversations with stakeholders that included the articulation and re-articulation of what the research was meant to achieve, sustained enough alignment to keep going. As a research team, being able to provide the detailed, granular examples to bring our big ideas to life (in ways that felt more familiar to the stakeholders, but which took the added step of connecting the granular to the broader context) actually helped the big ideas around

the future vision for the desktop 'stick' in ways that stakeholders could own with relevance for their specific teams.

Reinforcing a shared understanding of the research we were conducting and its relevance *across teams,* not just for one team, also led to more collaboration within the Desktop Group, because they had a shared set of data they could work with. One result after the project report was that a member from one team participated in another team's senior staff meetings, encouraging cross-pollination of insights. In the end, managers across teams within the Desktop Group became advocates for both the project results and for the use of ethnography for strategy. We learned that stakeholders do not need to be (and often will not be) fully aligned at the outset and in perpetuity—they just need to be present and voice their concerns and differences. More value came out of the research because of these misalignments.

Analysis Friction: Having Insights that Don't Fit with the Existing Worldview

During the analysis phase, a second friction emerged. The preliminary findings of the ethnographic research dichotomized desktop and mobile device usage, positioning desktops as the superior solution and relegating mobile devices, including laptops, mobile phones, and tablets, as the 'compromised' choice. This stance was problematic for ChipCo, given their diverse product portfolio, which included not only desktops but also a premium range of laptops and tablets. The initial findings from our research brought to light a sensitive friction: positioning one product as superior over another was not a narrative that sat well with ChipCo's internal dynamics. The laptop and desktop divisions, despite being distinct P&L product groups, already shared a kind of 'friendly competition.' Moreover, the laptop group had, years prior, anchored their product around the core value proposition of 'focus' —a strategy rooted in previous ethnographic research.

Why This Friction Was Challenging

Such findings threatened to create internal discord, especially between the desktop and laptop divisions, and ran the risk of the findings, framework, and vision being rejected by ChipCo. This meant the research team—particularly the subset internal to ChipCo—needed to discuss how elements of these initial findings were resonating with the laptop, desktop, and platform engineering teams, and to surface the aspects with the strongest disagreements or reactions. The research team needed a creative pivot that both stayed true to the ethnographic observations but was also helpful to the dynamics of the organization.

The friction necessitated a reimagining of how to interpret and apply the findings and insights. We needed to familiarize ourselves just as much with the insights and strategies of the broader product portfolio, actively pushing past silos (or separations or disconnections) of knowledge that existed from one team to another, as is often

the case within large corporations. And it requires creativity and a perspective shift to think about a vision that acknowledges and folds in a different product category.

How We Worked with This Friction

When faced with the challenge of analysis friction, our approach centered on three shifts: transcending the present understanding of the product, evaluating it in relation to co-existing product categories, and zeroing in on the overarching experience of computing as it manifested across diverse products and scenarios.

The result was the continuum-based framework described above, which sidestepped the pitfalls of a simplistic binary view of good-versus-bad computing experiences. The more inclusive framework mapped out the continuum from on-the-go to stationary computing, which was the way of conceptualizing products within ChipCo, and from more adaptable to more intentional, which was the way of conceptualizing the forms of computing we encountered in the field. This new model brought in multiple products' unique values and asserted that while products varied, each held a distinct position on the continuum of necessary and desired computing experiences.

Before embedding this new perspective into the Desktop Group's strategic approach, key figures from both the desktop and laptop groups were engaged in informal deliberations regarding the framework. The initial reactions were lukewarm. The framework shed light on a crucial facet that had often been overlooked: the multifaceted device ecosystem users navigated daily. Contrary to the product-centric mindset of each group, which viewed their product as the epicenter of the computing experience, this new paradigm highlighted a more integrated, holistic user journey. But eventually, for the Desktop Group this was a revelation. The research spotlighted how numerous users seamlessly transitioned between their desktop and laptop. Thus, instead of focusing solely on the desktop, attention shifted to understanding how the desktop nestled within a broader constellation of devices, offering a holistic and interconnected computing experience. The resulting North Star for the desktop was more realistic from this new perspective.

Resultant Traction

The friction not only shaped a different direction for the framework but also internally recognized the significance of computing as a range of experiences conducted through an ecosystem of devices, going beyond simplistic laptop vs. desktop comparisons. This newfound clarity was articulated in strategic documents for the Desktop Group. Intriguingly, about nine months after the final report, the laptop and desktop groups merged into a unified client group, aligning with the existing corporate language of a compute continuum, thus finally breaking down the product silos that perhaps had hindered user experience progress and innovation.

We observed that impactful applied ethnographic insights are ones that acknowledge and navigate the worldview of the organization.

Path-to-Action Friction: Implementation Requires Interpretation

It is an adage that ethnography is about 'making the strange familiar and the familiar strange.' Margaret Mead (1928) famously took the practices of adolescents in Samoa, made them familiar, and called for changes in education policies and parenting practices in the West. Horace Miner (1956) took the familiar (to the USA) and made it strange. He described the oral hygiene practices of the Nacirema ("American" spelled backward) in a way that sounded extreme, exaggerated, and out of context. He presented the Nacirema as if they were a little-known cultural group with strange, exotic practices, to highlight how we are all strange to each other.

The problem in applied ethnography for business is that general managers seldom want the familiar rendered strange or the strange familiar—the GM is the expert. Their ideas, strategy, and expertise on the products have led them to the executive positions they hold today, which might only be a stopping point for even higher positions. Besides the GM, there were six managers who felt the same way about their ideas in their own teams within The Desktop Group. These corporate leaders, having built their careers on specific expertise and strategies, are often resistant to or unable to resonate with the new perspective presented by research. Their commitment to a particular worldview can act as a barrier, preventing them from embracing alternative paths to action illuminated by the findings.

Why This Friction Was Challenging

The path-to-action friction emerges as ethnographic research unveils a new 'expert' perspective (often one that clashes with entrenched points of view) that needs to be implemented into another expert's ways of working. This presents a delicate balance for ethnographers seeking to impact business strategy. While our role is to guide, we must refrain from over-prescribing specific actions to managers and stakeholders. It becomes essential to offer space for varied interpretations of the findings and implications, ensuring those in decision-making roles feel agency in their subsequent actions. The ethnographer faces the challenge of maintaining flexibility in the findings to prevent stakeholder resistance to the findings. This means collaborating with stakeholders to shape their insights for diverse contexts and applications within an organization. In some ways, this can feel harrowing—what happens if, in the process of getting an executive to internalize or 'own' the insights, key aspects are misconstrued or misrepresented? In other ways, this is inherent to the interrelated, precarious, unfinishedness of the most traditional of ethnographic endeavors, as João Biehl describes in "Ethnography in the Way of Theory" (2013) when we consider that ethnography is not just what we encountered

'out there' in the field, but also what we encountered when the 'out there' interacted with the 'in here' of the corporation commissioning the work.

How We Worked with This Friction

To work with this friction, we created room for interpretation of the final report. Indeed, no strategic ethnographic 'final report' is final. As we discussed in the preceding sections, the ambition was to position the desktop in support of intentional computing. The final report was presented to the GM of the Desktop Group and VP of the broader Platform Group and then presented at various venues. It was followed by a workshop to help the teams understand what might not have been captured in the report, as well as help people make the report their own and most relevant to their work. A couple of weeks after the workshop, another workshop without the external researchers was held, as that collaborative portion of the project timeline was complete. This later workshop involved twelve key managers and stakeholders including the GM of the Desktop Group who decided that elements of the pillars were too complicated to implement as they stood. There needed to be a further workshop to clarify and align interests. The goal of this workshop was to reinforce the vision, prioritize the pillars, and create actionable goals for each of the groups developed out of the prioritization.

Each of the managers was able to make actionable goals out of the vision but these were not necessarily aligned one-to-one with the pillars; some of the managers completely dropped one or two of the pillars. The Platform Group, while keeping the vision, modified the pillars to match the initiatives they were working on that came closest to what was described in the original pillars (in effect, serving to prioritize their endeavors). By switching the pillars, while keeping the vision, the pillars became relevant language in the Platform Group. Meanwhile, in the user experience team within the Platform Group these pillars were broken down into usages, then feature-tested, and evaluated with traditional UX methods, with technological requirements specified around use cases. A similar process occurred within the Desktop Group, albeit with slightly different emphases on the pillars. Despite these adaptations, the overarching findings and vision remained consistent throughout the company.

Navigating the path-to-action friction thus unfolded in two ways. To resolve the clash between the traditional understanding of the product category and the new understanding, both the internal and external researchers needed to transition from informers to facilitators, creating the conditions (workshops) to allow management and stakeholders to meld and bend some of the pillars of the North Star. Relatedly, there was a need to empower various managerial teams and groups, allowing them to adapt and interpret the framework in ways that were relevant and actionable.

Resultant Traction

The adaptations and solutions developed with stakeholders, as they assumed the mantle of co-creators, were faithful to the overall vision and the spirit of the original pillars, though they weren't exactly the same as the original pillars. In the process, however, these became more contextually accurate, innovative, and tailored to managers and groups' specific business milieu. Moreover, this active involvement in shaping the framework meant that the stakeholders didn't just reference it but owned it. Their vested interest ensured greater accountability to upper management and a genuine commitment to the charted course. This collaborative friction broadened ChipCo's comprehension and implementation of the project's outcomes.

We learned that just as ethnographers interpret data to derive insights and recommendations, so too will our stakeholders interpret our insights and recommendations to fit their teams' mandates and focus areas. Facilitating rather than resisting that process requires the researcher to 'let go' of all aspects of the but ensures that the overall perspective is embedded within the organization.

IMPLICATIONS FOR ETHNOGRAPHIC PRAXIS

In our introduction we focused on how Tsing (2005) provided valuable guidance for re-thinking frictions, not as obstacles to be overcome but opportunities for traction. We believe reflecting on the three frictions in our work highlights some key values for frictions in strategic ethnography, and for our corporate clients.

Frictions can highlight the richness of diversity in perspectives, goals, and experiences in a given context. Just as Tsing's (2005) exploration of global connections reveals the complexity of cultural encounters, frictions in our corporate settings underscore the diverse viewpoints that shape decision-making processes. For ethnographers, recognizing and engaging with frictions can provide a deeper understanding of the complexities at play, enriching our insights and recommendations.

A NOTE ABOUT AGILE COMPANIES, FRICTION, AND STRATEGIC ETHNOGRAPHY

In today's dynamic business landscape, corporations must undergo a transformative shift from their conventional mechanistic structures to embrace agility (Aghina et al. 2018). McKinsey's vision of this transition contrasts the static, rule-bound "mechanical corporation" with the fluid, adaptable "agile corporation." In this progressive model, businesses are steered by a North Star—a guiding vision or principle that, unlike the strict action blueprints of mechanical corporations, allows employees the flexibility to interpret and innovate for the greater success of the company, moving in the general direction of the North Star.

Central to this agile evolution is the strategic embrace of friction. Traditionally seen as an obstacle in corporate circles, our work has shed light on friction as a potential goldmine for innovation. Disruptions arising from frictions surface the latent assumptions, orthodoxies, and norms within a corporation, as well as the richness of diverse perspectives across teams. This reframing of friction into an asset encourages a culture where employees defy the norms, leading to innovations that can overshadow competitors and shake up the status quo. It's here that ethnography proves invaluable; ethnography excels in uncovering these underlying frictions, illuminating the paradoxes within, and guiding agile corporations to harness these frictions productively—alongside deep customer insights, and an understanding of intricate market dynamics and societal trends.

In our corporate context, friction challenged existing norms, prompting stakeholders to reevaluate assumptions and explore new solutions. Encounters with research friction shifted our lens from mere desktop pain points to a comprehensive understanding of the holistic human computing experience, while still being able to answer detailed questions through the data collected. Analysis friction further exemplified agile tenets, as it drove ChipCo to embrace a North Star and a customer-centric, continuum-based framework, breaking down product barriers and invigorating its agility, which acknowledging existing worldviews (the fuller product portfolio). Path-to-action friction allowed teams to flexibly innovate on and through the North Star.

In sum, for corporations to truly flourish in today's volatile markets, they need to acknowledge and work with frictions. With its knack for unearthing and navigating frictions, ethnographic research stands out as an essential tool to answer strategic questions, empowering businesses to dive deep, challenge conventions, and emerge with renewed agility.

Strategic Ethnography Can Be More Proactive in Working with Friction

When we are in the middle of a strategic ethnography project we do not necessarily like friction or think of friction as a means to traction. But how can we be more proactive about identifying, working with, and possibly even seeking out frictions? How do we shift from a mentality of avoiding friction to letting it surface?

Recognizing When Friction Occurs in Ethnographic Projects

The ability to identify friction is a nuanced skill that requires a blend of keen observation, thoughtful reflection, and rigorous analysis. Here we provide some indicators we encountered, that can help pinpoint when frictions arise.

Unexpected resistance: When resistance is encountered that seems to come out of nowhere, it's often a sign that friction is at play. This resistance can manifest in many ways, from a participant's hesitancy to share certain information to a stakeholder's outright opposition to a proposed research method. The key is to not

dismiss this resistance as mere obstinacy or non-cooperation. Instead, view it as a valuable clue that there is an underlying issue that needs to be explored. It might be a cultural difference, a clash of values, or a fear of change that's causing resistance.

Emotional responses: Emotions can serve as a powerful indicator of friction. If interactions during the research process seem charged with heightened emotions like frustration, confusion, or defensiveness, it's a sign that there is more beneath the surface. These emotional responses often indicate that the research is touching on issues that are deeply important to participants or stakeholders, and this emotional charge provides an opportunity for deeper exploration.

Breakdown in communication: When communication starts to break down—when misunderstandings become frequent, or when there is a lack of clarity in interactions—it's often a sign of underlying friction. This could be due to language barriers, differing communication styles, or even conflicting agendas. Identifying the root cause can help address the friction and facilitate more effective communication.

Recurring themes of concern: If certain issues or themes keep coming up during research—whether in interviews, observations, or feedback sessions—it's a strong indicator that there is friction around those topics. These are not just random occurrences; they are patterns that warrant closer scrutiny. They might indicate systemic issues or deeply ingrained beliefs that are creating tension.

Discrepancies in data: When findings do not align with what was expected, it can indicate friction. This could be because different parties have different ideas about what constitutes valid data. For instance, a corporate stakeholder might prioritize quantitative metrics, while an ethnographer might value qualitative insights. These differing viewpoints can create friction that needs to be reconciled for the research to move forward.

Stakeholder reluctance: When stakeholders are slow to act on findings or recommendations, it's often because there are friction points that have not been addressed. This reluctance can stem from a variety of sources, such as institutional inertia, skepticism about the research methods, or concerns about the implications of the findings.

By deeply understanding and being attuned to these various indicators, we can not only identify but also effectively navigate through the friction points, transforming them into opportunities for deeper insights and more impactful outcomes.

Embracing Friction as a Helpful Force

First, we suggest a mindset reorientation: ethnographers should view friction as 'research gold.' At its core, friction is an indication of divergence or difference. It is not inherently bad, but it requires attention. In the corporate context, these divergences might arise from contrasting viewpoints, cultural differences, varying goals, or even opposition to change. Recognizing that these divergences exist

provides ethnographers with an opportunity to delve deeper into the underlying causes and to understand the broader context in which our work can have impact.

If the ethnographer needs a mindset reorientation, so do stakeholders and management. As a part of the introduction to the research, we should convey the potential surfacing and value of friction to corporate clients. When stakeholders understand that friction can lead to more profound insights, they are more likely to support the ethnographic process even when challenges arise, and to feel OK when the friction surfaces, because it is not necessarily a surprise at that point. Cases like this one can serve to demonstrate value.

Second, don't rush to resolve ambiguity, but rather embrace it as a team. See it as an opportunity to interact and build a deeper relationship with stakeholders or participants. In analysis and fieldwork, ambiguity (of which there is plenty at the outset) creates spaces where frictions are likely to emerge. It is in these ambiguous spaces that conflicting ideas, assumptions, and interpretations can arise. By not immediately seeking to resolve these ambiguities, but rather exploring and deepening them, the ethnographer can allow frictions to naturally surface rather than bury them to become problems that impede the impact of the project once it is over. These friction points can be invaluable, because they reveal underlying tensions, diverse interpretations, or hidden assumptions that, when addressed, can provide innovative pathways for product or service development, and aligning with a North Star direction. It can also reveal moments to build a new level of trust and understanding with individuals involved in the work.

Third, ensure the field research includes contrastive cases by design. This has become routine practice in much of our work. Ethnographers can deliberately introduce contrasting case studies or counter-narratives to their research. For instance, if researching user experiences with a desktop product, looking at veteran users, new users, and non-users, or those who switched, can provide those contrasting viewpoints and proactively introduce friction. These frictions force teams to reconcile with the unexpected, challenge their assumptions, and open new pathways for understanding. Additionally, by actively seeking stories or cases that do not fit the norm, ethnographers can highlight anomalies that, while friction-inducing, might be key to innovative breakthroughs or might anticipate current or future circumstances in the market.

Working Productively with Friction When It Arises

Frictions do not require modification to ethnographic praxis so much as they suggest a stronger emphasis on some aspects of our work, and a shift of focus from what we do 'out' in the field to also what we do with our corporate clients or stakeholders—the totality of which constitutes strategic ethnography. Here we outline some ways teams can work productively with friction.

Anticipate and recognize the points of friction in an engagement: Our work notes how corporate frictions can push organizations to reevaluate their strategies and adapt to evolving market landscapes. Ethnographers increase their value to clients and managers by leveraging these moments of tension to advocate for people-centered approaches, people-centered values, and thus steering corporate clients toward more adaptive and responsive decision-making to make them successful. Having a shared language as a team for frictions of different kinds, an awareness of how to identify these, and check-ins to assess whether any are emerging, could help anticipate friction proactively.

Understand the stakeholder context just as much as the 'field site': Ethnographers need to consider the work just an ethnography on a target population or group but also on the corporation commissioning the work. Stakeholder interviews will never be sufficient for this. So, the ethnographer needs to possess strong cultural agility and empathy skills to quickly navigate the diverse perspectives and values that contribute to frictions within corporate environments (the same agility and empathy applied to the traditional 'field site'). Being alert to the cultural nuances of different stakeholders and their viewpoints enables ethnographers to empathize with their concerns and motivations. This skill helps build trust and open lines of communication, allowing ethnographers to mediate and facilitate productive conversations around frictions. Relationships with the stakeholders becomes as important as the content itself, if not more so.

Go beyond research, to mediation and conflict resolution: Our case illustrated that frictions often arise when multiple parties encounter misalignments in expectations or interpretations. In Tsing's book (2005) and in our work, friction sparks opportunities for new collaborations and relationships. Ethnographers need to be more than researchers in these contexts. Our role can act as mediators, facilitating dialogues between diverse stakeholders to bridge gaps, resolve misunderstandings, and foster a sense of collective ownership. Through this process, deeper collaborations can emerge, yielding more holistic and effective solutions.

Conflict is not usually something ethnographers are trained to embrace. But ethnographic projects often reveal, if not generate, conflict. Today's ethnographers should be skilled facilitators and conflict resolution experts to effectively manage and leverage frictions for positive outcomes. Frictions can stem from misunderstandings, conflicting goals, or differing interpretations. Ethnographers should possess the ability to guide discussions, manage tensions, and facilitate dialogue that encourages participants to share their perspectives openly. By creating a safe space for stakeholders and participants to express their concerns and aspirations, ethnographers can help unravel the paths forward arising out of frictions.

Provide stories that anchor frameworks and recommendations: Stories stick. Effective storytelling skills are crucial for ethnographers to translate frictions into actionable insights and transformational narratives. Ethnographers must be adept at distilling complex issues and tensions into clear, relatable narratives that

resonate with corporate clients. Stories have the ability to be boundary objects but have multiple meanings, uses, and actions. Stories can capture stakeholders' attention, persevere, and help motivate and guide change. Additionally, stories that have the ability to communicate findings in a way that aligns with each stakeholder group's language and concerns enhance the chances of achieving buy-in and generating momentum for transformation. Ethnographers who excel at strategic storytelling can guide the evolution of frictions from obstacles to catalysts for organizational change.

Be OK with final reports not being final and being interpreted: Final reports in ethnographic research or design studies are often seen as the definitive end of a research effort. However, this view is limiting. Not only are these reports provisional living documents open to interpretation, but they also serve to facilitate ongoing relationships between consultancies and corporate stakeholders. When stakeholders engage in interpreting the findings, they take ownership of the insights. This active engagement makes the insights more actionable and relevant to specific needs, thereby extending the life and utility of the "final" report, even if they do not exactly follow the report. The process of initially creating the report involves collaboration, negotiation, and a shared understanding of its contents, which strengthens the relationship between the two parties. The report then becomes not just a deliverable but a tool for ongoing engagement, allowing both parties to revisit and reinterpret findings as needs and contexts change. Final reports should be considered starting points for discussion and action rather than conclusive ends.

CONCLUSION

For too long, the concept of friction has been viewed through a negative lens, seen as an obstacle to be overcome or a problem to be solved. This case study challenges that perspective by arguing that friction is not a hindrance but a catalyst for innovation, deeper understanding, and meaningful progress. In the context of strategic ethnographic research, friction serves as a mirror reflecting the complexities and nuances that are often overlooked in more streamlined, frictionless approaches. Whether it's unexpected resistance that forces us to question our assumptions, emotional responses that reveal deeper layers of human experience, or stakeholder reluctance that prompts a reevaluation of our methods, each point of friction is an opportunity for growth and learning.

Ethnographic research, with its focus on understanding human behavior in its natural context, is uniquely positioned to not only identify these points of friction but to leverage them for deeper insights. The ethnographer's toolkit—comprising keen observation, thoughtful reflection, and rigorous analysis—is ideally suited for navigating the complexities that friction reveals.

In sum, the lessons drawn from this case study emphasize that frictions in ethnographic research within corporate environments are not obstacles to be

avoided, but rather sources of valuable insights and impact. This case has been about one project and the frictions that have arisen. There needs to be further examinations of the value of frictions in other ethnographic projects. By embracing frictions as opportunities for innovation, collaboration, uncovering hidden dynamics, and driving change, ethnographers can guide their corporate clients toward more informed and effective strategies.

NOTES

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1. The term "stakeholder" has historical baggage. The concept of a "stake" has roots in colonizing forces where land was given away at the expense of first nations (often with an additional aim of eradicating their cultures); literally putting a stake in the ground to claim what was already occupied by others. In that sense, the term "stakeholder" has been criticized as having an expropriating connotation. In this case study we use "stakeholder" as the common industry term, since there currently is no agreed upon alternative. We have relied upon Reed (2022) for much of our thinking on the issue.

2. We note that stakeholder alignment is importantly different than stakeholder management and stakeholder engagement. There is no one dominate point of view on the stakeholders. We refer here to The Stakeholder Alignment Collaborative's (2023) definitions:

- [S]takeholder *management* is typically expressed by one party looking out and seeing stakeholders who may be opposed or present complications that need to be managed . . .

- [S]takeholder *engagement* is typically expressed as the need for one party to engage stakeholders who may be supportive or who would have important inputs to be taken into account. In both cases that focus is on viewing stakeholders from one party's perspective. By contrast, *stakeholder alignment takes the vantage point of the system as a whole,* with alignment being an inclusive process. (*emphasis added*, 2023:20)

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Breaking the Wall of Engineering and Culture

Applied Qualitative Research in Software Companies of LATAM Industrial Sector

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This report condenses the learning of more than three years of ethnographies carried out in the Latin American industrial sector. We will rely mainly on the case of a Peruvian reseller company and local representative of a global 3D engineering software solution. The complete process of research proposal, demonstration of its advantages, resistances, methodology, findings, and application toward business strategies was executed between 2017 and 2020.

For this research, a method called Techno-Ethnographic Consulting was planned, which combines in-depth interviews with business deliverables for informants, specifically designed to obtain qualitative data in B2B industrial companies of technological products and services when the researcher is also a technical expert.

The researcher was a mechanical engineer with background in business anthropology and worked within the company as a member of the organization. The reseller business style is B2B, and its clients are industrial companies with design and manufacturing areas.

Keywords: B2B, software, industrial sector, marketing, qualitative research, LATAM

A 3D ENGINEERING SOFTWARE FOR A GLOBAL INDUSTRY

In engineering and manufacturing in the industrial sector, 3D technologies have taken an irreplaceable role since the late twentieth century. Among the most important 3D engineering software on the market is SOLIDWORKS, with almost 4 million users worldwide by 2023.

For this case study we will show how marketing segmentation and content quality was improved in a SOLIDWORKS distribution company in the Latin American industrial sector. To do this, it was necessary to promote and conduct qualitative research that would answer why it is more difficult to commercialize SOLIDWORKS in some countries than in others. Specifically, we wanted to know the idiosyncratic factors that should be considered, in addition to technical and economic variables, for the commercialization of this software.

SOLIDWORKS was developed by SolidWorks Corp., with headquarters in the United States, which in turn belongs to the French corporation Dassault Systèmes. SolidWorks Corp develops the software and distributes it through partners (known in industry as VARs or *Value-Added Resellers*) located in most countries. VARs are responsible for following the general brand guidelines develop by the parent company and offering the product locally to their respective countries.

Its clients are industrial companies that have engineering and manufacturing departments. Its wide portfolio of software solutions is used in verticals such as machine and structural design, metalworking, mold design & plastic products, Oil & Gas, automotive sector, among many others.

VAR, Headquarters and Corporation Relations

The Peruvian VAR classifies as a medium-sized company—an SME with approximately 25 employees. Its portfolio of products and services consists of 3D design and simulation software for engineering, and 3D scanners for mechanical and industrial design.

As a VAR, its sales guidelines, pricing, brand, and technical aspects are mostly determined by the direct management of SolidWorks Corp. and mediated by a regional management (LATAM) based in Brazil. The regional management tries to support VARs with their sales goals and marketing strategies to achieve them.

This Peruvian VAR was directed by its owner and Commercial Director. Under her management are the Sales, Marketing and Technical teams, as well as a financial manager. At the time of this research, the technical team was relatively small (5 people), serving primarily to Sales team as internal customers, and to SOLIDWORKS clients as external customers.

SOCIETY, TENSIONS AND DIFFICULTIES IN INDUSTRY

Although regional managers provide technical and commercial training to improve VARs processes, it is difficult for them to understand in depth the particularities of each country. LATAM VARs share this challenge. They all know, at least intuitively, that the idiosyncratic variability of each country has to be considered too, besides the difficulties inherent in industry.

For instance, in the Peruvian case, the VAR organizational structure was hierarchical, functional, and process-based (Zapata, Gerardo and Hernández 2017, 72-76). In the country, this hierarchy is not only organizational and typical of companies, but it is also a social expression common to most institutions: guidelines are usually vertical, and dissent to authority and collaborative discussion are not preferred.

This verticality from authority is noticeable in power relations between employer and employee, foreman and worker, teacher and student, house owners and service personnel, school principal and student parents, etc. These same power relations were also observable within the client companies in the industrial sector, and shared too by the Peruvian VAR owner, who directly established the Sales and Marketing strategies.

At the same time, informality permeates Peruvian society (70% of informality index) and is visible in the internal processes of companies, including the private sector. In the Peruvian VAR, the internal processes were not fully defined, which

resulted in disorder and incorrect tasks prioritization. Consequently, the work was very tough, often unnecessarily.

The work environment in Peru is additionally of long labor hours, pragmatic, impetuous, tough, and disorderly. In this context, effort associated with work is often valued more than the results. This hard work style is known as *chamba* in Peruvian jargon. In fact, a very popular saying in the country is "*soy chamba*", as a positive value of being an audacious and resourceful hard worker.

In this sense, both the guidelines verticality and the informality of internal processes in organizations create frictions to promoting new research methodologies and theoretical approaches to business problems. If market changes or if a deepening understanding of clients were needed, a bossy leadership and internal process improvisation would increase the resistance to necessary adjustments. Regarding the positive perception about hard and practical work, this is also an impediment to the implementation of new technologies, like advanced engineering software.

Another friction point is related to the industrial business praxis itself. SOLIDWORKS sales were not entirely driven by classic B2B strategies, but primarily by relational marketing, or trust-based relationships. Basically, this consists of removing one by one all the formalities and corporate "theatrical masks" (Goffman 1959) between sales representatives and prospects. These masks or formality layers consist of the codes and behavior required within the industrial spaces: style and topics of conversation, appropriate clothing, professionalism, diplomatic way to solve problems, privacy of information, among others.

For instance, the entire process and experience of scheduling a meeting and visiting a client inside a factory, including the almost-penitentiary architecture of the facility, and the protocols and good manners in dealing with the people of these spaces, are barriers that prevent the sincere expression of needs and preferences between the suppliers and the client. In fact, the visitor treatment regarding industrial security is similar to prison treatment, almost omni-disciplinary (Foucault [1975] 2002; 216).

We can see this through a typical business day. The sales representative shows up at a small window outside of the tall walls of the factory (some of them with turrets). A security guard checks their identity, dress code, and electronic devices. Weapons, cellphones and cameras are forbidden. After a meeting confirmation, the sales representative must walk through a pedestrian crossing marked on the floor while being guide by the security guard. The salesperson is then guided to a waiting room where he will be received by the client. The supplier and client will finally discuss needs and solutions, all under an implicit code of good corporate manners. This whole process is even more bureaucratic and rigorous if the site is a mining plant or militarized factory.

As a professional, the sales representative must leave the best possible technical impression and economic proposal, but only the subsequent and friendly follow-up, through phone calls and subsequent visits, is what manages to relax the

overstructured interaction with the client. Thus, the sales representative can discover what are the real motivators behind the technical needs discussed.

B2B MARKETING LIMITS

The combination of Peru's social reality and the restricted access of industrial companies was so complex that could not properly address the clients' needs and an adequate marketing content from the typical practice of marketing and sales.

SOLIDWORKS promotional content and demonstrations were created based on the technical needs of developed countries and mainly related to engineering innovation. For the reasons explained above, it was difficult to promote their commercialization in the Peruvian industry. In fact, innovation has always been a difficult challenge to face due to a variety of technical, economic, institutional, and sociocultural causes, according to Sagasti (Sagasti 2003).

Consequently, a regionalization for content and sales pitch based on the real needs of local industrial market was necessary. This was evident from a marketing point of view, whose professionals understand the importance of focusing products and services centered in the customer's needs and behaviors. Even so, in practice, planning and execution of in-depth research methodologies is rarely applied by marketing teams of Latin American industrial companies, which prefer to use and limit to quantitative methods.

With quantitative data, obtained mainly through surveys and technical-commercial dashboards, the VAR could only know how many customers it had, the general segmentation of buyer personas, which were the best clients, sales goals, sales income, and what were the technical supports carried out.

But by not delving deep enough into the clients context, the sales and technical teams were exhausted and struggled to achieve the required commercial goals. For instance, because technical demos were generic, they had to be repeated and refined through several meetings. It was necessary to overexplain the software benefits as the technical team had to work more to compensate for the lack of software customization and required. Because clients required full-time consultation rather than simple technical support sales cycles lasted several months.

The Need for Qualitative Research

Having observed these difficulties between 2014 and 2017, the researcher (as Applications Engineer) actively promoted the practice of qualitative methods to regionalize technical demos and improve marketing segmentation[1].

At the time, the client segmentation offered by the Marketing department consisted in industrial sector companies that had technical areas dedicated to design and manufacturing products, and that also had enough budget to acquire solutions such as SOLIDWORKS. It was a generic technical and financial segmentation.

The personas were divided by type segmented as engineering managers, supervisors (or team leaders) and technical designers:

- **Engineering managers**: In charge of leading the engineering team, in addition to planning budgets and development times. They are the ones who would make the decision to buy the software, and their motivations to buy it would be more economic than technical. They are passionate about creation of new products and their launch to market.
- **Supervisors/leaders**: They are the leaders of the different engineering disciplines involved in the product design cycle and manufacture. They are the ones who authorize the final design and the step towards manufacturing. They constantly evaluate possibilities for continuous improvement for their teams.
- **Technicians/Designers**: They are the designers and calculators in the team who draw the blueprints and work on the iterative design stages. They want to get the job done quickly and communicate their designs through modern digital technologies.

To provide more culturally relevant segmentation, qualitative research was carried out in 2020. This research also addressed a new question. To understand why it is so difficult to sell SOLIDWORKS in Peru, the research team encouraged sales and marketing teams to first answer a different question: *What are the techno-cultural factors of the engineering departments in the Peruvian industrial sector that affect commercialization of SOLIDWORKS?*

METHODOLOGY: TECHNO-ETHNOGRAPHIC CONSULTING

To introduce the qualitative research into Marketing processes, and at the same time overcome the resistances of these corporate-industrial spaces to this research, I proposed to transform semi-structured interviews into a set of free consulting projects for clients. This technique was also complemented by other methods such as participant observation and autoethnography both with the VAR organization and client companies. At the end, during the consultancy/interviews, I explained to the interviewees that their information would also be analyzed to provide a better service and customizations for the VAR marketing contents. Each one of them agreed and appreciated it.

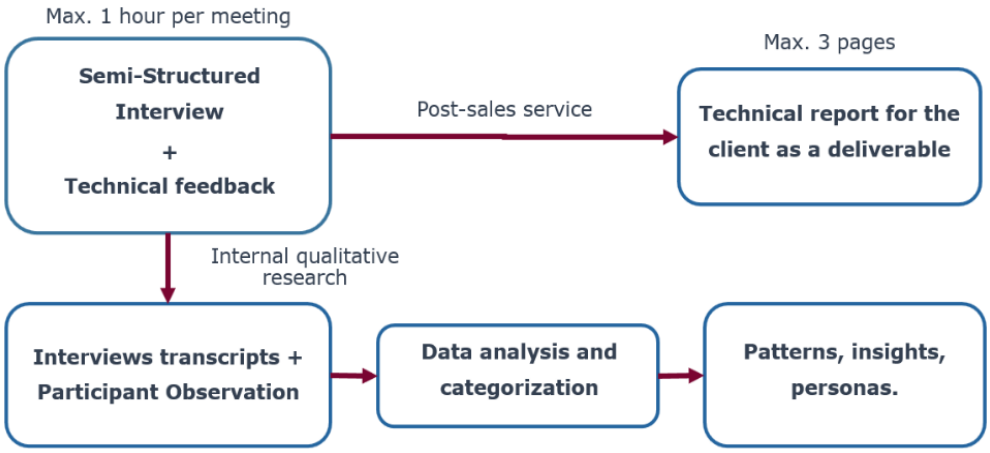

Figure 1. Techno-Ethnographic Consulting workflow. Source: Own. Year: 2023.

Other sources of qualitative data came from Sales and Technical teams, through text messages and WhatsApp voice messages, email reports, LinkedIn and Facebook web pages, as well as brief verbal reports with VAR managers in the form of follow-up conversations.

The entire research project was executed in 12 weeks. This is in line with the average research time observed in similar projects executed within the private sector, which is usually estimated at 10 weeks (Isaacs 2016).

Research Results

In contrast to generic marketing segmentation, through qualitative data we found a new way to describe and classify customers. After analyzing the gathered data, we found four different personas beyond the known stereotypes. Namely: The *Chambero* (hard worker), the *Apprentice*, the *Expert* and the *Administrator*.

- **Chambero**: The profile most frequently found among the interviewees. They want to compensate their academic studies with courses and certifications that guarantee recognition in their work and a better position in their organizations. SOLIDWORKS means for them an opportunity to leverage their career through new certifications. At work, they just want to get the "chamba" done without many complications, and this preference is transferred to the software expectations. Their approach to problems is very pragmatic (accordingly to Peruvian society), closely linked to manual tasks and manufacture. They do not like theoretical approximation to problems resolution. The software is just another tool that stays at work because they do not use it at home to continue with the responsibilities of the job.

- **Apprentice**: Sincerely interested in learning, although they would also like to be validated through certifications. They are the ones that interacts the most in social networks and participates in marketing events (webinars, workshops, brand launches). They are persuaded through real cases studies in industry and research projects. This is the persona that best adapts to changes and new products.
- **Expert**. They have a lot of experience using SOLIDWORKS and even try to develop customized solutions, integrating it with other software or tools. They use SOLIDWORKS at home to gain deeper knowledge. They are enthusiastic about marketing events only when it comes to advanced demonstrations. They are usually engineers (they are not neither technicians nor managers). They may sometimes express or imply that SOLIDWORKS falls short regarding their purposes. When they accept meetings, they ask for a general demonstration of all the software capabilities. They are only persuaded by technicians whom they consider their peers at the level of specialized knowledge.
- **Administrator**: They are people who are not usually very interested in technical details. For them, all 3D design software is pretty much the same. They want their projects not to be delayed or expensive. They are persuaded if they receive help o advice to get more customers. They want to be perceived as a good managers, businessman or administrators in their organization. They are only persuaded by experts or another administrator profiles.

The personas we found differed from the Marketing segmentation based on managers, leaders, and technicians. Unlike the original premise, concerns and motivators of these profiles are not rigidly structured by roles but are equally manifested regardless of the position. An engineering manager can be as *chambero* as the technician, a technician can behave like an *expert*, and a supervisor can fit into the *apprentice* profile. Therefore, technical or economic interest does not depend so much on the role but on the organizational culture of the client.

Most of the engineering areas observed in Peruvian industry are basically technical areas, where many of its members are more designers than engineers. Their interests are closer to manufacturing than to the creation of new products. In fact, almost none of the personas obtained expressed an explicit interest in innovation, in contrast to the marketing prerogatives from SolidWorks Corp.

Instead, they wanted to take advantage of the software and its popularity to get certified and compensate for the lack of formal education (difficult to access in the country). By becoming internationally certified in SOLIDWORKS, they would have more credentials to move up in their career.

The few companies that expressed interest in innovation were those made up of multidisciplinary engineering teams, with more than ten team members. These would be the right fit for a software like this.

At the same time, we discovered that in addition to technical needs and budget, the right candidates to buy SOLIDWORKS must have a "technological maturity" or "cultural suitability" so that they understand this type of software solution and its workflows.

Cultural suitability means that, within industrial sector, in areas of Engineering, IT and Purchasing, there is a system of social factors, values, behaviors and relations (internal, between workers and leaders; and external, between the company and its suppliers) that grow into a specific organizational culture. This culture intervenes directly in the negotiation, purchase, implementation, and post-sales of technological products.

This is where society idiosyncrasy intervenes in the technical aspects. Among the techno-cultural factors found, I observed the more open the technical teams are with disagreement and horizontal discussion of new ideas, the more oriented they are towards the creation of new products and services, fostering a truly culture of engineering innovation. In the design and manufacturing of complex products, it is common for the different engineering disciplines involved (mechanical, electronics, control, manufacture) to negotiate with each other to meet their respective requirements. This is achieved through collaborative design, for which SOLIDWORKS was intended. Rigidly vertical and hierarchical organizations have difficulty assimilating this style of workflow and tools.

The relationship with time and its instrumentalization, as well as the verticality between the client and its suppliers, are also cultural variables that permeate from society towards engineering practice and software commercialization. Client unpunctuality, suspended meets several times, meeting with the supplier in improvised moments and spaces, client commitment to purchase and then extending their payment time, demanding excessive discounts or unagreed post sales services during periods that exceed the scope of the project, all this, are other expressions of the power relations and informality of the Peruvian society.

These local cultural peculiarities, in addition to the particular motivations of the personas found, are factors that directly affect the business and that cannot be detected only through the generic technical-financial segmentation of marketing or quantitative methods.

Based on this train of thought, I found SOLIDWORKS difficult to sell not exactly because of its price, but because of its multi-modular, integrated tools and options, were intended for multidisciplinary, horizontal collaborative teams. As it is not specialized software in a particular engineering discipline, but rather serves as a multipurpose toolbox for 3D engineering, the end designers, who do have to complete very specific tasks, only use a small group of the software options. So, from corporation perspective the software pricing reflects a fair value for all its tools,

while clients end up paying the full price even if they underutilize the software with only what they need. This is where the client perception that SOLIDWORKS is expensive comes from.

This also explains why the client tries to compensate for the seemingly expensive purchase with a very demanding personalized technical support, almost as an exclusive consulting. Basically, it is a retaliation or "act of justice" from their point of view: If they have no choice but to purchase SOLIDWORKS at that price, then the VAR must provide an exceptional post-sales service.

From VAR perspective, meeting these post-sales expectations implies an overload in the tasks for the technical team, which in turn affects the delay of all technical and commercial aspects of the business, ultimately affecting sales.

ORGANIZATIONAL IMPACT AND CONCLUSIONS

These results were presented to VAR and LATAM managements. They were received with great curiosity because it was the first time that an investigation of this type was made.

Based on the research, VAR increased its number of commercial meetings, as well as improved its webinars quality and social media engagement. Overall, the discourse shifted from a SOLIDWORKS-centered one to one focused on industry-specific needs and solutions. In fact, VAR management understood they must segment at least nine industry verticals to better understand the needs of the Peruvian industrial market.

These verticals were, from highest to lowest commercial importance: Machine design, metalworking, mold design, cabinets and electrical design, plant and pipe design, air conditioning and refrigeration systems, architecture and civil engineering, electronic design, and design of cosmetic products. From the qualitative research carried out, the first three are those that best fit the ideal of innovation, multidisciplinary teams and collaborative work needed to use SOLIDWORKS solutions.

However, there was also resistance in the acceptance of the research results. One of them, as expected, was the "small" sample size (13 interviews). One way to facilitate the understanding of the qualitative research validity during delivery of results is to "translate it" in quantitative terms, especially in organizations with a sales and technical mindset.

As interviews were conducted, new and relevant information offered by interviewees becomes less or more difficult to obtain. The *saturation point*, then, behaves in quantitative terms like an exponential curve whose asymptote represents new information.

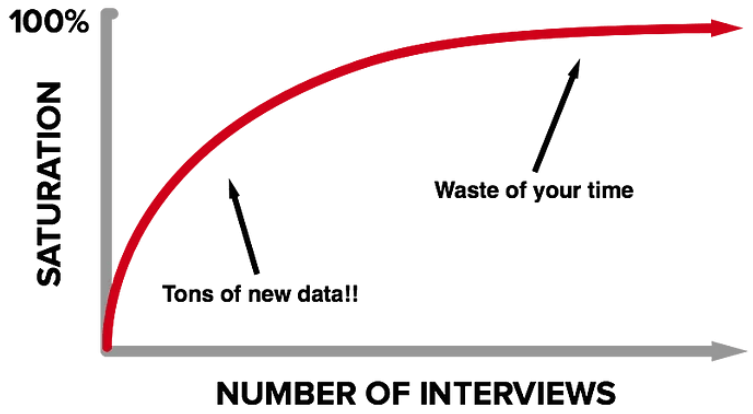

Figure 2. "Saturation curve" of semi-structured interviews. Source: Seaman (2015). Year: 2015.

By explaining it in this "didactic" way, stakeholders understood that a greater number of interviewees does not indicate additional relevant information, intuitively interpreting that qualitative research is maybe, in its own way, quantitative research. Even so, after discussion of results, researcher was invited to continue conducting more interviews, in order solely to increase the sample a little more.

Resistance to qualitative methods in corporate engineering environments may persist even after beneficiaries understand their methodology. Another doubt or friction was related to the researcher's experience. VAR management was unsure whether the results presented were from the qualitative methodology applied or if they were rather conclusions drawn from the researcher's experience in industry.

Paradoxically, the trust placed in applied ethnography methods is, really, the trust placed in the researcher, who earns this credibility if he/she manages to demonstrate that his/her knowledge goes beyond ethnography theory and practice, and that also can understand jargon, dynamics, and corporate objectives (Hanson 2016).

Doubts were dispelled when, in a subsequent research project, I developed for Sales a business tool called *Technological Maturity Model*, which was based on the qualitative data collected, including techno-cultural factors, to examine whether a prospect or client was technologically mature for the acquisition of SOLIDWORKS or more sophisticated software solutions.

Also, I could observe that if research results are opposed to the interests of the researcher, then stakeholders may conclude that results are indeed the output of the method and not the researcher opinion. This was precisely the case, since, after the research project, one of the strategies necessary to improve sales opportunities was to apply a laborious regionalization of all technical demos, being this task under my responsibility as an Application Engineer.

The experience of working within the VAR enriches the context of the results and analysis. The researcher thus has the possibility of understanding in depth the

internal power relations beyond the company organization chart, as well as the dynamics between the company and its clients.

With this knowledge, I can really work from the results found and promote the impact of the research. In this regard, anthropologist Laerke Gry Agger, former Senior UX Researcher at Cabify[2], explains that working within the organization, a researcher can be aware of the concerns of the teams, their KPIs, and business problems. It is the only way there is enough context to make a significant impact on the company[3], in contrast to researchers hired externally in a consulting role.

The project also shows that beliefs and values system of companies arise from their owners and directors, and then are channeled and refined through Marketing team, whose members define the official narratives (beliefs system) of the organization-tribe. In this sense, the researcher, whether external to the company or working as a member, is also subjected to this system of beliefs and values, having to translate their findings or recommendations into the dominant discourse of the organization.

For instance, since SolidWorks Corp. promotes innovation in each of its speeches and trainings, then they should demonstrate by example that their organization also applies innovative internal processes, such as qualitative research to improve marketing and sales strategies in LATAM industrial sector. This was a way of speaking in the same corporate codes and narrative, taking advantage of them for the application of an in-depth research.

Engineering Culture versus Idiosyncrasy

Since the personas described in the qualitative research were limited to technical areas, and their tasks are internationally standardized or regulated, it was possible to observe an "engineering culture" (or technical convention) within technical teams in industry in terms of values, goals, motivations, and management, regardless of the country. For LATAM, and from the case studied here, I noticed a general shared culture in industry for design and manufacture engineering.

At the same time, it is possible to deduce that any variability observed across the homogeneous and regulated technical praxis in different countries are due to social or idiosyncratic factors. Comparing these variabilities between technical spaces of each country allow us to notice and highlight the local idiosyncratic factors that permeates through the regulated engineering practice, and then use them for research analysis.

This is because there is no absolute dominance of the technical normative behavior over idiosyncrasy, but rather a local adaptation of these rules, a partial absorption of what is necessary to maintain a normative standard within the company. There is not a complete corporate assimilation that implies a total loss of local identity.

Instead, there is a hierarchy among overlapping value systems within organizations in industrial sector. Thus, idiosyncrasy is the base for any particular

organizational culture. And in turn, this organizational culture is the base for the standardized engineering culture.

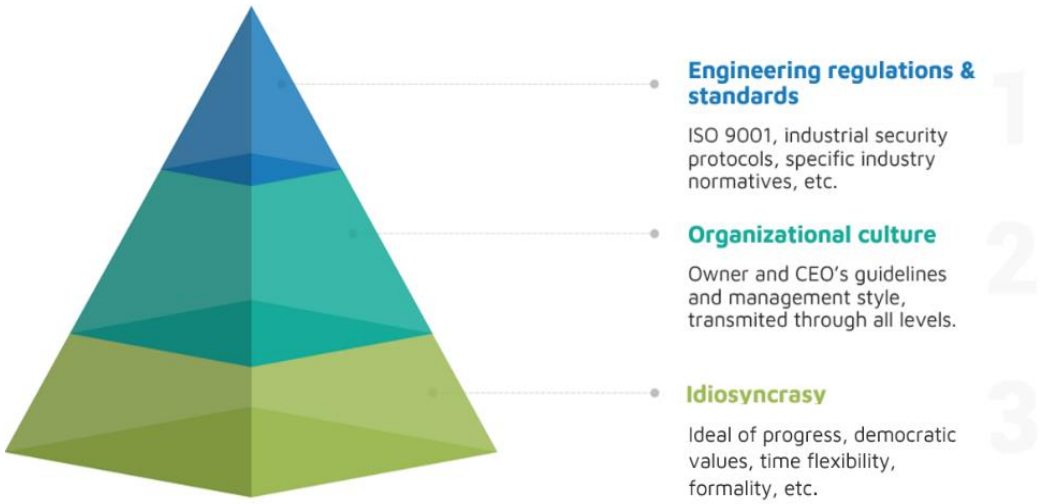

Figure 3 3. Hierarchical culture layers observed in industry organizations. Source: own. Year: 2023.

It was from this analysis that variables such as the horizontal (democratic) discussion of ideas, time management flexibility, and even the local ideal of technical progress were considered as cultural factors that come from idiosyncrasy. Also, they influence the specific technique within industry dynamics, including the relations between suppliers and customers. This is how we can approach to the different assimilation (or rather rejection) of technological solutions (like engineering software) for LATAM countries.

About the Method and Frictions Encountered

The researcher, as a participant observer but mainly as an Application Engineer, was an expert on the technical products offered by the VAR. This was advantageous because it increases the trust in the researcher, facilitates empathy with informants, improves communication and impact on the delivery of results, and allows the development of specific business tools that feed on qualitative data.

But, as has been said, it also fosters doubt (within the VAR) about whether the results are obtained thanks to the researcher experience or by the research method itself. At the same time, this proximity to the work diminishes the anthropological distance the researcher must have with respect to the context observations. In this sense, the applied methodology and frictions encountered deserve a final reflection.

Considering that an engineering software is a tool at the end, an ideal ethnographic method would have been a total immersion within client companies, to

directly observe how the implementation and use of the software on site, as well as taking notes on the daily work related with other software and its suppliers. However, this poses enormous difficulties given the privacy policies of companies in the industrial sector. For this reason, in addition to in-depth interviews, software usability tests are good alternatives for these purposes.

Even so, research within companies, especially as participant observer, allows the discovery of "sincerity spaces." These are physical and/or digital spaces configured within the business dynamics, with the advantage that they are not rigidly subject to corporate norms o supervised, encouraging a free expression of ideas and behaviors of employees.

In the industrial sector, some examples of these spaces of sincerity are the company's transport for employees, the company canteen, an alternative WhatsApp groups to the official company channels, informal conversations during work trips, fieldwork without supervisors, corporate parties and special events[4], etc.

As it was explained about the inherent resistances of the corporate interactions between suppliers and customers, the discovery of these opportunities for "relief" or spontaneity is very important for the development of B2B business; even more for industrial sector, characterized by private spaces of very limited access. In this way, suppliers (and researchers) can understand the real motivators and coercions behind the industrial client's needs in greater depth.

In fact, one way to identify a space of sincerity (or conversely, an insincere one) is through the informant discourse. As Moeran (2016) points out, if the discourse is repetitive across different informants and coincides with the institutional or normative narrative of the company, it is likely that in that specific place there is not freedom or the sincerity necessary to extract qualitative data.

A direct corollary of this ideas is that, leaving everything corporate-normative behind, the informants' behavior within sincerity spaces is the behavior that most express the idiosyncratic factors within industrial environments.

Thus, we can notice how these insights help us not only to understand and mitigate the frictions inherent in conducting qualitative research in these spaces—so technical and isolated that they are not aware of the ethnographic applications on private sector—but also help us manage the frictions between the market approach of suppliers (in this case, SolidWorks Corp and the VAR.) and the different local realities of clients.

In addition, it was shown that it is possible to find a deeper segmentation based on personas than the usual industry marketing segmentation. By making strategic decisions based on these new profiles, and by obtaining from them positive results through improved marketing content and sales tools, a real impact was generated too within the VAR organizational culture. In this sense, two more frictions were dispelled: the resistance to test new ways of understanding final users and verticals, and the doubts about whether an engineer can be a legit ethnographer.

Finally, having said all the above, I believe the most suitable qualitative research methods to create knowledge from B2B industrial companies would be participant observation, semi-structured interviews and analytical autoethnography (Colobrans 2018), which require for the researcher to carry out prolonged immersion working within the organization with the advantage to gather deeper insights from the cultural context of these technically regulated spaces.

I personally hope the contributions of this case study encourage more ethnographic projects in the industrial sector, especially in Latin America. As this study demonstrated, this research is not only possible, but necessary for the best development of engineering software solutions as much as for the satisfaction of end users in industry, whose local needs would finally be heard and addressed.

ABOUT THE AUTHOR

Salvador Suniaga (1984) is a mechanical engineer and ethnographer of the Latin American industrial sector, specialist in engineering software solutions. He has leveraged his experience in technology product & services companies to create valuable knowledge from private sector to academia.
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NOTES

1. The author of this case study does not represent the official position of the employer. However, it was not easy to support these initiatives. VAR leaders did not know about qualitative research methodologies, and even after a long and constant process of internal disclosure and updating about them, these methodologies were considered typical of foreign organizations, especially from developed countries. That is, in-depth research was considered as an advanced and exotic solution that had no application in local companies. From their perspective, no one in Peruvian industry, even in LATAM, was doing this type of applied research.

2. Technology and mobility company that offers transportation services through a mobile application.

3. Gry Agger comments on this as a professional guest in a recorded lesson of the Master of Business Anthropology of UMANYX, in the module *Working in Business Anthropology*. Year 2020.

4. In fact, this is intuited by suppliers marketing teams when they organize talks or presential events: in addition to capture business opportunities, they know prospects and customers in these spaces are particularly more spontaneous in sharing information about the dynamics of their work, needs and expectations.

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Mediated Bodies and Embodiment

Presentations in this session share sensory and embodied approaches to research, prototyping, and product development, as well as core challenges of power and equity in our products, services, and systems.

Discussant, Brandy Parker, *Design Director – Health at IDEO*

Toilet Talk

The Subtle Art of Awkward Research

ANNIE LAMBLA, *Coloplast*
CAMILLE RONCERAY, *Coloplast*

Imagine you are dealing with bladder or bowel problems, and while sometimes your life is joyful, you also sometimes struggle so much you feel you have to hide from others. How likely are you to have a vulnerable conversation with a stranger through your bathroom door?

At Coloplast, we really interview people while they sit on the toilet; there are some taboo topics we can't avoid. Starting from how people "go to the bathroom," our conversations expand into topics of their joys, hopes, and fears about life with intimate healthcare needs: e.g. ostomy care, urinary retention, bowel incontinence.

In this PechaKucha, we will explore how "user" and "researcher" perspectives echo each other as they interact. We acknowledge the delicate nature of these sensitive conversations, and we respect the difficulty of embracing vulnerability. This talk is a reflection on embracing the awkwardness of social taboo, and share more publicly about a sector that is highly regulated, competitive, and private. We will take the audience on a journey, from avoiding social friction – because the topic is taboo and uncomfortable, to letting social friction arise, and finally, feeling liberated by it.

Accessibility as Apparatus

How the Friction Filled Experience of Using Hearing Aids with a PC Led a Corporation to Design for Accessibility

EMORY JAMES EDWARDS, University of California, Irvine
SUSAN FAULKNER, Intel Corporation
RICHARD BECKWITH, Intel Corporation
REBECCA CHIERICHETTI, Intel Corporation

This paper explores the complex, kluged, multi-device systems that hard of hearing (HoH) users must grapple with when trying to connect their hearing aids to their PCs. We argue that these systems can be modeled as a physical apparatus, a Rube Goldberg machine, made up of many forces causing drag or friction in the interaction between assistive devices, people with disabilities, and computers. Our fieldwork covers three related research studies and a total of 22 in-depth remote interviews plus contextual sensory media data collected through Dscout, an end-to-end mobile ethnography platform, with hearing aid users. We provide examples of environmental limitations and technical difficulties of multi-device pairing and switching, along with personal details of life, work, recreation, and socializing that dictate particular use cases. We also discuss the interpersonal, environmental, and technical factors that had to align at an organizational level in order for this research to occur, before finishing with the significant organizational outcomes of these studies.

THE PROBLEM: "PARTICIPANT" ZERO

In some ways, this project all started with one colleague, our so-called "participant zero," who inspired us to consider hearing aids and PCs in new ways. The experiences of this deeply frustrated hard of hearing (HoH) colleague inspired the research thrust focusing on accessibility, and specifically on the issue of helping computer users who wear hearing aids. During the lockdown stage of the pandemic, when everyone worked from home and interacted with colleagues solely through the PC or phone, participant zero, our senior colleague, shared his frustrations with remote meetings, and especially remote audio. He explained that his Bluetooth-enabled hearing aids could connect easily with a phone but could not connect directly with a PC. As a technologist at Intel, he was able to kluge together a daisy chain of peripherals that worked but was cumbersome. He used a docking station connected to a dual audio jack switcher which was connected to a streaming device that transmitted sound to his hearing aids. A jumble of cables kept everything hooked together. In complexity, it was reminiscent of a marble guided to a target that causes an arrow to be released and push over a piece of paper that frees a golf ball that falls and bounces to hit the power button of a laptop. In the many interviews we subsequently conducted with people who wear hearing aids, we never met anyone else with a similar setup; he had found a novel way to address his

problem. Most of our participants were not aware of *any* solution. His solution did work. However, it was expensive, unintuitive, and took up valuable space on his desk. While not practical or reproducible for most HoH computer users, his extreme example was inspiring for an assortment of multi-disciplinary colleagues across the business unit including a group of user experience designers and ethnographers that pursued a program to better understand the experiences of HoH computer users. That research team later collaborated with audio technologists to refine a product that will greatly improve the experience of HoH computer users.

BACKGROUND: ORGANIZATIONAL PRECURSORS

In other ways, the story started long before the COVID-19 pandemic made remote meetings a challenge for our HoH colleague.

In the past, accessibility-related work in the Intel business units had been sparse and fragmented. At the level of the corporation, there were social responsibility goals that addressed accessibility and disability inclusion, primarily with the aim of increasing the percentage of employees who self-identify as disabled. In 2021, the corporate Accessibility Program Office added a new full-time inclusive design operations program manager role, and she began to drive the adoption of inclusive design and research processes in the product space. During this time, the Accessibility Program Office had been working hard to make in-roads into the business units. These and several other factors led to the creation, within the laptop division, of an accessibility working group led by one of the authors. This working group subsequently launched a series of user experience research efforts.

Around the same time, there were also innovation campaigns around the corporation, many of which propelled accessibility work forward. Improving the way that hearing aids interact with PCs (from our frustrated engineer colleague) was the winning idea in the Wireless Innovation Campaign, which sought novel product ideas from employees across Intel. Subsequently, the Accessibility Innovation Campaign in 2022 sought accessibility-related product ideas. It increased awareness further and resulted in three winning product ideas. Elsewhere in the company, colleagues in Intel Labs, a research division, had been working on accessibility-related innovations for years (e.g., Blankinship & Beckwith 2001; Denman, Nachman, and Prasad 2016). Accessibility within Intel goes at least as far back as 1997 when Gordon Moore, co-founder of Intel, took a particular interest in creating customized wheelchair-mounted systems for Stephen Hawking, including his speech synthesizer (Medeiros 2015) and switch-scanning editor, an open-source version of which is still being updated and distributed by Intel Labs (ACAT 2023). Since then, accessibility has been a small but varied topic of research within Intel Labs, and it meant that our colleagues there were eager to help integrate their accessibility knowledge into the laptop business unit in order to impact product definition.

Meanwhile, a wireless communication team in the business unit was working on a new version of Bluetooth with the goal to improve audio experiences. Their focus was primarily headphones and earbuds, but through a series of meetings and introductions, the wireless team and the accessibility research team found each other and started working toward a common goal: to convince the corporation that we should all work to improve the experience of computer users who wear hearing aids.

THEORY: DISABILITY, FUNCTIONING, AND THE FRICTION MODEL

Historical work on "cures for deafness" (Virdi 2020) suggests interesting considerations for how to frame "friction" in the context of our research into the technology of hearing aids and the people who would wear them. This history includes a long line of supposed "cures" that have been offered to and adopted by those with significant hearing loss. However, these cures were simply not capable of doing what their purveyors claimed. Even latter-day electronic devices (like those of our colleague) fail to "cure" and often merely frustrate. In speaking of these, Virdi reminds us that:

> Those who purchased an electronic device were not acting out of ignorance, but were seizing an opportunity. They were not embarking on an unreasonable and irrational path to health, but strolling along a resourceful trail of health care. (p.124)

More than just a history of deafness "cures," Virdi's book also offers a look at the pathologizing of deafness. The long history of cures that have been offered demonstrates that deafness has often been considered a problem that one must solve. The electronic devices encountered and purchased on this "trail of health care", then, are often a species of "technology solutionism" (Morozov 2013), especially when they are assumed to be a cure for deafness. Here, we should turn to Virdi as she, herself, has profound hearing loss. Her work drives home the point that, whether they are effective or not, technologies that don't respect one's sense of self are not solutions at all and so many of these technologies are not even effective. Thus, Virdi's "resourceful trail" is fraught with disappointment. Respect for the sense of self and consideration of the paths people take suggests another way to consider our current work and one way in which we think of friction.

The philosopher John Macmurray (1957) was a proponent of "I do therefore I am." He talked about how our sense of self comes from our engagement with the world, from how we move through the world exploring, testing, and learning. At its core, Macmurray saw life and self as perception in action and he saw the resistance to action as "the Other" – that which is not "me". According to Macmurry, resistance—or we could label it friction—allows me to learn about myself and the world, where I end and the Other begins, and properties of both.

More recently, an anthropologist strongly influenced by Macmurray's work, Tim Ingold, has made the connection between self and friction more explicit (2010). Like

both Virdi and Macmurray before her, Ingold uses the metaphor of strolling in a world full of experiences and resources. Ingold says that as we take this metaphorical walk and experience the ground and the air, our minds extend into them and, inevitably, "tangle with the minds of fellow inhabitants." Ingold tells us that friction is necessary; that it holds everything together while at the same time revealing unity of the parts. For example, in considering a basket weaver, Ingold says the "maker is caught between the anticipatory reach of the imagination and the frictional drag of materials" (2012). So, as we wend our way along paths through the world, it's the frictions that we experience and make use of that determine not only what we know of the world but also who we are.

Coming back to the sense of self, Virdi makes clear that there is a unique sense of self among the Deaf community. Many people, especially those with profound hearing loss, consider themselves members of the Deaf community, agreeing with Virdi that Deafness is not a "disease" that forces one to have a sense of self that is "less than." The identification with what has been called, "the big-d Deaf community" is invariably a point of pride and has led many to now refer to the community overall as the D/deaf community. It would be wrong to think that any technology is necessary to fix who they are. Hearing loss might define what they hear and, perhaps, who they interact with and how they interact, but its defining powers don't need to extend to their sense of who they are.

Similar to this notion in the D/deaf community, our hearing aid wearing participants seemed to describe their experiences as having hearing loss or their *hearing* as being a disability even if they didn't feel comfortable with calling themselves "disabled." At the same time, there are acoustic phenomena in the world that are used by other inhabitants that many people with hearing loss cannot experience without some assistance. We can consider our work with technologies for hearing not as a cure for deafness but rather as an adjunct to the experience of deafness that would allow people to move through the world experiencing some of these unavailable phenomena – embodied in these *frictions* – should they choose to. However, most importantly, these technologies themselves, like all others, offer a second kind of friction that we must also consider.

Borg et al.'s Friction Model (Borg et al. 2010) is a tool for considering the ways that different factors in people's lives (from health conditions to environment to personal identities) impact what is possible for people with disabilities to do at any given moment. Using a physics-based metaphor, the authors model ability and functioning in social and physical space with the forces of weight, friction, and resistance. They suggest thinking of a system that, essentially, pulls an object across a table. The system consists of a sled on a tabletop that is attached to a rope that leads over the edge of the table and suspends a bucket (see Figure 1). The rope can drag the sled across the table via the downward pull of gravity on the mass in the bucket. These items themselves are seen as massless and frictionless, so if one were to place any mass in the bucket but none on the sled, the rope would pull the sled. In the

Friction Model, the properties of the sled, bucket, and tabletop are defined by building blocks taken from the WHO's International Classification of Functioning, Disability, and Health (ICF). Mass in the bucket increases the force with which the rope pulls the sled. Mass on the sled increases the friction on the runners of the sled. The runners themselves can have more or less friction depending on their properties. The lower the friction, the less mass required to move the sled. Only when we consider all of the variables can we start to ask whether the system will function as it should.

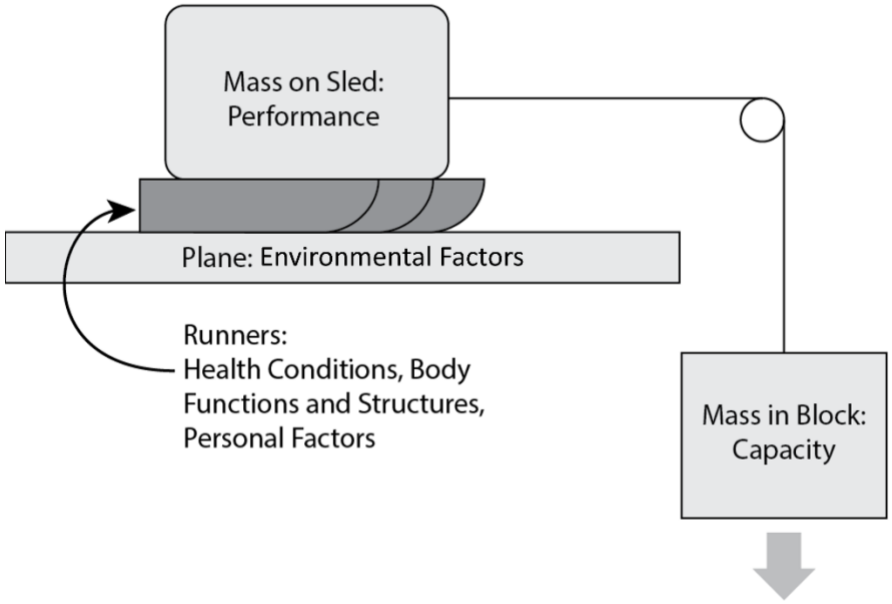

Figure 1. Diagram showcasing relationship of performance to various frictions and capacities

A person's overall capacity for action (their ability to complete actions or tasks) is the weight in the bucket which provides tension on the rope. The person's performance (the movement of the sled/what the person wants to do) is based on the level of friction that must be surmounted by the weight in the bucket. Mediating the rope's tension are the coefficients of friction, which Borg et al. group into three categories each represented by one runner on the sled: health conditions (diseases, disorders, injuries, traumas, etc.), body functions and structures (physical, psychological, and anatomical elements of an individual body and mind), and personal factors (such as gender, race, age, or any other detail of an individual's life background). And all of these elements move across the table which contributes to the coefficient of friction through the environmental factors (i.e., the physical, social, and attitudinal environment in which people live).

Important takeaways from the Friction Model include that disability is not inherent to any given physical condition (as you might expect from the medical model of disability), but neither is it entirely unconnected to physical functioning (as a purely social model of disability might suggest). Instead, many factors play a role in an individual's ability—or lack thereof, i.e., disability—in every given moment of interaction. Additionally, it is important to take seriously this concept of friction and resistance as forces that can lead to disablement or disability. Disability is not a static feature of a person or condition. Neither is it felt as a consistent pressure in all areas of life. Disability is something that anyone can experience to some degree because it exists in the moment in which all the elements that make up our lives do not move smoothly against each other. Instead, they catch and drag and heat up. Someone with a disability may experience more of these moments of friction than a non-disabled person might, but even then, the different degrees and ways in which elements of one's life do not move smoothly vary greatly depending on multiple factors.

Deaf communities, particularly those who identify with and coalesce around a shared signed language, often do not label themselves "disabled." Other people with hearing loss—even those who are "mainstreamed" and forced to engage on the biased footing of hearing society—may not identify with the label "disabled" or "person with a disability;" others may. Our participants, all hearing aid users, seemed to view their hearing loss as an impairment, a complication in day-to-day functioning that they would generally prefer not to have to deal with, thus we follow their lead and refer to their hearing loss as a disability. However, because all our participants are HoH and hearing aid users, they do not and should not be taken to represent the opinions of D/deaf people generally.

In fact, that's something that any theory or theorizing around disability has to contend with: the simultaneous distinctness of people with disabilities (as a marginalized group of people in an ableist world) and the complicated "sliding scale" nature of disability. For example, within the EPIC community, few works have discussed people with disabilities (Weinstein 2019, Harple et al. 2013). Research on remote meetings or the future of work (Thomas et al. 2022, Aiken and Ramer 2020) have important ramifications for people with disabilities and yet the ways that (in)accessibility impacts and is impacted by all users and situational factors has not generally been addressed. Even within generalized models of how friction functions in human culture or computing (Ash et al. 2010; Tsing 2011) the particular way that the same general frictions can be amplified and multiplied for HoH and other disabled users have not been dealt with. The primary takeaway is that no single experience of disability or friction is unique—people without disabilities deal with the same kinds of problems all the time, with headphones and Bluetooth connectivity and similar technical frictions—however people with disabilities have these daily difficulties compounded by inaccessibility, stigma, and social exclusion.

METHODS: PARTICIPANTS AND DATA

Methodological Advantages in Disguise

The three research projects that make up this paper's dataset were conducted during a period of either Covid or budgetary travel restrictions or both. Two studies used Zoom and Teams to conduct in-depth interviews. One study was conducted using the Dscout remote research tool. For all the studies, the remote nature of the research allowed for a broader recruitment of participants, and meant participants could call in from cities across the U.S. The team was not limited by resource constraints to engaging with participants in only one or two cities. While there are obvious drawbacks to using remote research methods, there were also some advantages to speaking with HoH people about their experiences using computers while we were limited to communicating through computers. Remote interviews allowed the team to witness first-hand some of the very big frustrations the participants had with remote communication. The research team quickly learned that it was helpful to participants if they could clearly see our lips as we spoke. In addition, some participants relied heavily on the simultaneous captions provided in Zoom or Teams. Many participants joined the interviews using their phone for the audio portion because it could pair directly with their hearing aids, and they used their computer screen to see our faces and read lips.

The combination of phone and PC occasionally posed some problems, for instance when the research team experienced loud feedback from a participant named Craig[1] and tried to mute him when he wasn't speaking. This solved the feedback issue, but he could not unmute himself so twenty minutes of the interview were spent troubleshooting audio which was ultimately resolved by him joining the call from a different PC. Craig relied heavily on captions and needed to read our questions before answering. It was a slower cadence, and we learned to pause after asking a question so that he could catch up to the captions, which were always several seconds behind. It was tolerable for us in our interview setting but would obviously be a challenge for him during remote meetings when work colleagues speak quickly and sometimes more than one person speaks at a time. When we spoke with Victor, an ASL translator, they were in a school lobby area and all the background noise was amplified on our end because of the built-in microphone on Victor's hearing aids. It was an extremely challenging way to interview someone and would have been the same for anyone trying to chat with Victor by phone. A participant named Monica is both a quadriplegic and has severe congenital hearing loss. She has a host of difficulties with her hearing aids and her technology set-up. She had a new computer and was unable to pair her hearing aids to it. She relies heavily on captions, whether she is paired or not, but she could not join our interview from her computer in order to see them there, and her home health aide was not able to help. She ended up using the phone for our interview, but she was not able to hold the phone up so that she could see the captions. It was a challenging

conversation. However, what these challenges gave us, in practice, was an in-depth view of the experience hearing aid users had with their computers and technology setups that mimicked other observational or participatory methods involving people with disabilities (Paluch et al. 2017; Weinstein 2019).

The Three Studies

The first study aimed to better understand the daily practices of people who wear hearing aids, with an emphasis on learning about their experience using audio on computers, especially the process of pairing hearing aids with a laptop. Working with an outside agency, the team recruited eight participants of different ages who wear hearing aids, and who also used or wanted to use computer audio in their activities. In addition, the study included interviews with two audiologists, experts who help prevent, diagnose, and treat hearing and balance disorders, and are the primary conduit for accessing custom fit hearing aids. The team found audiologists with experience helping their clients pair hearing aids to various devices, including computers.

Of the eight people in the study, seven paired their hearing aids directly to their phone using Bluetooth. Only one paired his hearing aids directly to his computer (he was a retired IT professional). Two people paired to their computers using intermediary adapters. Another participant was inspired by her participation in the study to reach out to her audiologist and bought an intermediary device that worked for pairing with her MacBook. Victor, the ASL translator, could connect to Apple computers at their workplace but was not able to connect to their own Windows PC at home. One person was not able to pair her hearing aids with her computer at all, even with an intermediary device, and several had never tried. Monica told us, "I plan to physically bring the audiologist all my devices this time so she can pair them, except my TV, obviously."

The second study involved follow-up interviews with six of the hearing aid users interviewed in the first study. These follow-ups both built on our understanding of their experiences from the first study, as well as being part of a larger study on the topic of situational or environmental awareness and sensor monitoring to support people with hearing loss or low vision. As such, in the follow-up interviews, conducted by the first author, we discussed their current degree of awareness or worry around missing social, emergency, or other audio cues while their hearing aids were connected to their devices. We also discussed what sorts of sounds they would ideally like to be alerted to when at their computer and how they would like these alerts to be communicated. This transitioned into talking about the potential ability of the computer to provide additional audio filtering or enhancements and what their opinions were on that. Finally, we discussed any general or security concerns they might have around devices monitoring or processing the sounds happening around them.

The next study was conducted via a remote research platform called Dscout. Seven participants were recruited to participate in a diary study and follow up interviews. The diary study pinged participants over the course of a week and asked them to reflect on various experiences with their hearing aids and computers. The interviews gathered feedback on four use cases that presented solutions to common problems with hearing aids as identified in the earlier study.

There was a minimum of four diary entries for participants to complete: an introduction to the pairing process (where they showed their attempt to pair their hearing aids to their PC), a snapshot of work in the morning, a snapshot of work in the afternoon, and a reflection at the conclusion of the work week. Each entry consisted of a few questions (Where are you? What software are you using? etc.) and a one-minute video to talk through a challenge from that day.

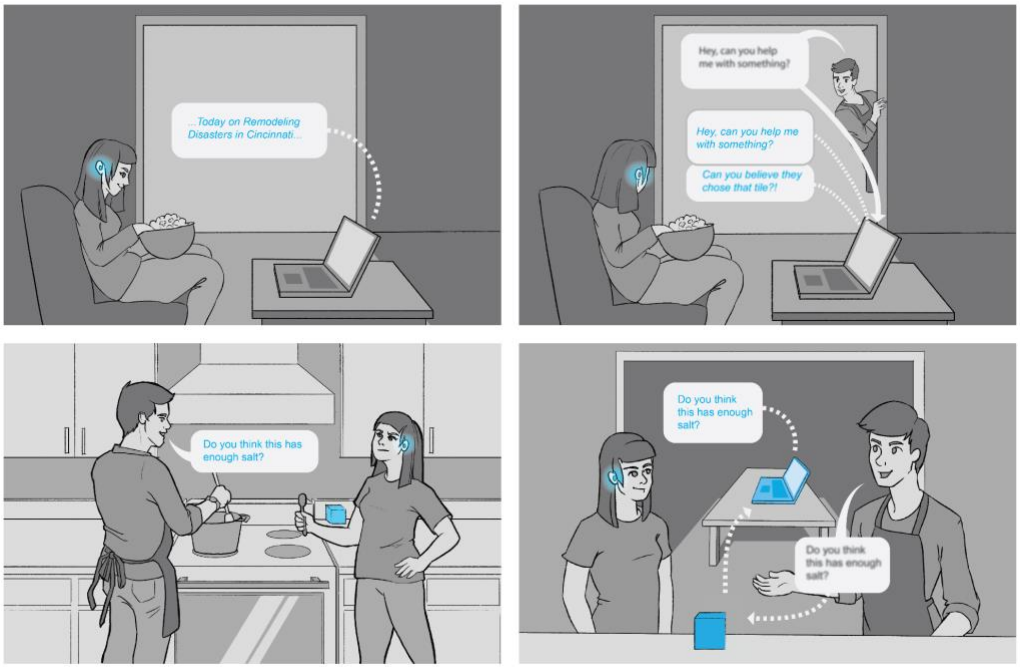

Figure 2. Example storyboard depicting an improved conversational experience by leveraging compute power from a local PC

After completing the diary entries, participants were interviewed individually. After a brief introduction, we followed up on interesting or unique details from the diary entries. We then solicited feedback on solutions to four key problem areas: Pairing hearing aids to a PC, managing and switching between multiple paired devices, balancing multiple audio channels being streamed simultaneously to hearing aids (ie, ambient sounds along with audio from a PC), and improved audio processing by leveraging a PC processor. Each solution was presented in the form of

storyboards (see Figure 2). We would first try to understand the user's current solution to this problem, then present our improved experience. Then users would rank each concept on a five-point Likert scale for both their personal need and general usefulness to the HoH population. Feedback was generally positive, with pairing and switching devices identified as the most helpful solutions.

FIELDWORK: PARTICIPANT PROFILES AND ETHNOGRAPHIC DATA

To begin this section, let us introduce in more detail some of the participants from our studies. These three profiles discuss the details of each participant's environment, hearing needs, and life experiences to demonstrate the variety in our participants and their particular frictions.

Robin is a 40-year-old gamer, streamer, and artist with asymmetrical moderate hearing loss. At the time of our study, she was unemployed, but typically she works in an office environment doing tech support. Robin's preference is to work remotely in order to avoid the audio cacophony of most office environments. At home, her hobbies center around a PC she built. While she can't afford the latest and greatest hearing aids, Robin is quite tech savvy and makes the best with what she has. There are some capabilities on her hearing aid she does not utilize on account of complexity and unreliability, but she has built an ecosystem of devices that let her stream audio from multiple devices. It is workable, but not perfect.

Craig is an engineer in his late fifties with severe hearing loss that began in childhood. He often relies on friends and family to assist with interactions with strangers such as a pharmacist or cashier. While hearing aids are an incredibly important tool for Craig, their shortcomings both compound existing difficulties and cause a lot of new frustration themselves. At work, Craig sits in a cubicle. When focused on his computer screen or desk, he cannot hear coworkers approach and is startled when they get his attention. In conversation, he regularly needs to interrupt people and cue them to speak louder or lean in closer.

Patricia is an audiologist who has run a private practice for 20+ years and uses hearing aids herself. Much of her patient care revolves around how to use hearing aids. To help them find the best hearing aid for their needs, Patricia learns what they do for work and their broader lifestyle. She says that patients will sometimes say of one audio source or another "Oh, I don't have to hear *that*!" These tend to be older folks, half with no phone or who think the phone is too complicated. She has them compile a wish list of features and budget, then does her best to set them up with a device that will fit their custom needs. The patient's comfort with tech is part of her decision-making process. At times, Patricia works with HR and IT to help support her patients at work. She also regularly contacts the hearing aid manufacturers for troubleshooting. In general, Patricia encourages her patients to connect their hearing aids directly to an audio source for the best quality even if that means using an intermediary device.

In addition to these broad overviews, we would like to give some example frictions from Patricia, Robin, and Craig, as well as other participants, to demonstrate the ways the general friction forces described in the Borg et al. (2010) model in practice fall into one of four categories: technical frictions, environmental frictions, social frictions, and personal frictions.

The environmental and social factors of Craig's job overlap in ways that affect how he communicates with others. As an engineer, he works in an often-noisy assembly environment which requires him to get closer to people to hear them,

> "As people work with me, they understand 'he can't hear well' so most of them adjust and it goes well with colleagues providing accommodations to compensate for my hearing. Every now and then there'll be someone that won't speak up and they just don't adjust so I will ask somebody next to me, 'What did she say? What did he say?' And they'll repeat it for me. The funny thing is they still don't get it. They'll [still] talk to me and they won't speak up."

On the other end of the spectrum, some people in Craig's work environment understand how to provide basic social accommodations for hearing loss. For example, he and his manager have a system worked out where Craig will repeat back what he thinks he heard his boss say, to make sure they are on the same page or to give a chance for his boss to clarify any miscommunication.

Craig spoke about his uneasy balance between not wanting to be visibly different, and therefore Othered, versus having a non-apparent disability and not receiving accommodations. He explained it this way:

> "The number one, general [rule] is anybody with a handicap wants to be normal. So, you don't wanna miss the lady behind you with the shopping cart or just somebody that comes up and speaks to you and asks you: "What time is it?" I always apologize, 'I'm… you know' but again the [thing about] hearing loss and hearing aids is people don't notice that. Put me in a wheelchair then they know immediately the handicap I have, and they adjust to that. So those are the little everyday things. Other things I worry about would be an emergency command like 'Duck!' 'Get out of the way!' 'Look out!' that I may not hear those and that's a concern. So, it's hard for me to relax a lot when I go out in public because I'm just trying to be alert and look for these things… Any emergency signals, things like that, you definitely worry about that, that you're gonna miss that."

During one of the interviews, Craig encountered one of the issues that can come up with virtual meetings when a participant has severe hearing loss. He was traveling when the interview took place, calling in from a location that was not his usual set up. While he was completely on top of the technical requirements, such as having his older hearing aids that could connect to the computer charged and on, plus the device he used to connect his hearing aid to the computer also charged and available, he knew he still would rely to a certain degree on captions. However, he couldn't make full use of the captions because of environmental factors outside his control.

His internet connection was slow, suffering under bandwidth limitations that impact streaming audio and video. While the video lagged on the interviewer's side, on Craig's side the captions were delivered in fits and starts. The first part of the interviewer's question would be transcribed, but then lag would set in and the captions wouldn't keep up, leaving Craig waiting for the rest of the question to come through, only for the Teams call to then jump forward and deliver the captions from the end of the question. Craig didn't mention this issue until the end of the call, evidently embarrassed and used to compensating for accessibility issues without asking for help. Thus, the technical design of the video call software, the social pressures on Craig as an older adult with hearing loss, and the environmental factors related to differential internet access in different parts of the world, all worked to create a more difficult experience for Craig than he or the interviewer could have anticipated.

One participant, Kerri, a 56-year-old documentary filmmaker with hearing loss particularly in the higher pitches, bemoaned the lack of fashion or fun associated with hearing aids, "It's not Warby Parker. There is nothing cool about them. It's like having crutches. There is nothing fun about having them except you can hear better." She also explained that, unlike glasses, hearing aids need constant monitoring:

> "Nothing's easy, but I adapt. I don't use the word easy ever when it comes to this. It's a prosthetic device. It's not like putting on glasses and you can see… The thing that's most difficult is my mom talks really, really loud on the phone and my dad talks really, really soft. So, I feel like I'm monitoring it, dialing it up and down all the time like I'm on a sound mixing board."

Noises can be loud, intense, and can even feel "invasive" coming to Kerri's ears, so she often turns her hearing aids off. However, she says this means "I've had people come up to me and say, I thought you were just really, really- you know, a mean word. Just blew me off, I mean you just walked away and didn't reply. And I'm like, 'I don't hear.'" Like Craig, Kerri has safety concerns. She says, "I fear [missing something important] all the time. I'm sure that's how I'll die. Something's gonna hit me out of the blue that I never saw coming." Regarding a mass shooting in a grocery store, Kerri explained,

> "I shopped [in a nearby town] where the shooting was. That's my grocery store. Now I promise I will always wear my hearing aids [in public]. I used to take them out. Why'd you wanna hear grocery store clanking and bells and whistles and people calling over the monitors? And now it's like, 'hey, I should be aware of my surroundings.' So I keep them on. I used to really like it in a naïve way, and now I don't like not being able to hear."

In addition to changes to literal environments around hearing aid users which complicated their use of their hearing aids, especially with PCs, the social and

professional environments of participants' lives have a huge impact. For example, Kerri, as a documentary filmmaker, described an experience where she created a film for a client using headphones (she could not stream audio from her PC to her hearing aids at the time, although she later bought a device that allowed her to do so). After delivering the video, the client complained about a disruptive background noise running through the audio. However Kerri could not hear the background noise and had to ask a filmmaker friend to re-mix the audio and remove the disruptive noise for her.

Robin, who we spoke with when we conducted the diary study, spent most of her time in her home office working on creating artwork, streaming, and gaming. She had an advanced setup for digital content creation and avid gaming. One issue she discussed was with her headphones. She had tried fancy gamer-style Bluetooth headphones, but the Bluetooth signal interfered with her hearing aids. So instead, she had to get wired, closed-back headphones that she could wear over the top of her hearing aids. She explained,

> "When I wear them, I can hear really well what's going on in the computer environment. But unfortunately, I can't hear what's going on in the real-world environment. So, I'm constantly doing this [motions to pull one side of the headphones away from her ear] so that I can hear what's going on around me."

Robin felt that being able to pair her hearing aids directly with the computer, having them function as both hearing aids and headphones simultaneously, would be incredibly beneficial. She also explained that she would often miss phone calls because she didn't hear the phone ring with her headphones on. Taking her headphones off to either answer a phone call or react to someone when they approach her, is a serious interruption to her workflow.

> "The headphones that I wear are rather clunky, they're heavy. At times, they hurt the top of my head just from the weight of them. And if I don't get them in just the right place, sometimes they make the hearing aids squeal… So, if I would have been able to [pair my hearing aids directly to my computer], that would be so easy, and it would just be so natural to come in and sit down and get ready to work. Being able to take phone calls while I work and being able to multitask, that would be huge for my productivity."

As an audiologist, Patricia has a different perspective on frictions associated with hearing aids. Her top challenge is navigating an ecosystem of hearing aids, connectable devices, intermediary devices, varying audio environments, and the needs of each individual patient. Outfitting a patient with the right hearing aid depends on a number of factors such as budget, lifestyle, work tasks, and which audio signals are most critical for the patient. Interestingly, the patient's audio profile was not mentioned nearly as frequently as a patient's lifestyle and technical abilities. After choosing the best lifestyle fit, the next step is setting up the new hearing aids

and teaching the patient to use them. The amount of labor required at this stage can vary dramatically depending on the patient's familiarity with hearing aids and general tech savviness. For an established patient, a single visit may be enough to set up new hearing aids. For others who are less familiar with hearing aids, she may schedule two or three extra appointments to check up on them and help troubleshoot. In general, Patricia encourages patients to connect directly to an audio source when possible. Sometimes this means encouraging them to purchase a new cellphone or an intermediary device. There is complexity due to the sheer number of phones and devices and lack of standardization across them. An example is that some phones are paired to hearing aids via the Bluetooth settings while others must be connected through accessibility settings. If the patient uses the wrong option, the hearing aids may still work but not correctly. Software updates can be chaotic, and Patricia counsels her patients to wait a week before updating a device.

There are other systematic barriers to patient care aside from wrangling hardware. While she worked at a hospital, Patricia had to prioritize treating a high volume of patients and there was rarely bandwidth for the technical support they required. Additionally, there could be extra constraints on brands and budgets. In her state, Medicare will not cover hearing aids and Medicaid will only cover one entry-level hearing aid every three years. The payout takes so long that Patricia cannot accept Medicaid at all.

The three research studies led the team to gain a much deeper understanding of hearing aid wearers' experiences. Because hearing loss is an invisible disability it frequently leads to situations that are embarrassing and frustrating. Research participants continually must explain their hearing loss to people around them who are not aware they are struggling to hear. Hearing aid wearers also have to make changes to volume levels and device settings on the fly, which can be difficult mid-conversation and socially awkward. Many participants use lip reading and captions in addition to relying on their hearing aids to understand what is being said which makes using the computer, with its relatively large screen, important in business and social settings. The ability to stream audio directly from a connected device to their hearing aids has a huge impact on hearing aid wearers' quality of life. All participants said being able to stream music, phone conversations, and other audio directly into their ears was "life-changing." Those who could connect their hearing aids with their computer valued the ability to stream audio from their PC instead of being limited to using their phone or forced to find workarounds. The concept of seamless, fast switching among paired devices (such as the phone and the computer) was research participants' number one priority. Connecting hearing aids more easily to the computer was their next priority. The most important finding was that if hearing aids could pair more easily with the computer, and stay connected, it would be a game-changer. Effortless, easy to understand audio of video calls, meetings, media and entertainment content delivered from the computer to hearing aids would be highly beneficial and even transformative.

RESULTS: ORGANIZATIONAL OUTCOMES

Figure 3. Fitting an employee with new BluetoothLE 6 enabled hearing aids for a user trial. (Photo credit: Walden Kirsch, Intel)

Research findings were shared with the wireless technology team, teams of business planners, and with corporate executives. Each team went from not knowing much about hearing aid use in relation to computers, and not thinking much about people who are HoH and regularly use computers, to a heightened understanding of the many pain points experienced by people who are HoH, and how important it is for them to be able to easily hear the sounds coming from their PC. In one instance, a product planner doubted that the experience of connecting hearing aids to a PC could be a big enough pain point to warrant a dedicated effort to solve it. After the research team reported their findings and showed multiple examples of the very complex and exasperating issues users were experiencing, the planner was convinced and became a champion of the project.

The technology team had been thinking mainly about the impact Bluetooth LE Audio would have on connecting headphones, and the research showed them how vital connectivity is to people who wear hearing aids. While there was interest in helping this group of computer users with a critical basic accessibility issue, there was also the sense that the need for a better experience connecting hearing devices to the computer would be amplified with this group more than with a group of users without hearing loss. This group would make an excellent set of test subjects because their needs were so acute.

The accessibility research team and the wireless technology team realized together that the new Bluetooth spec would be a perfect solution to many hearing aid connectivity problems. The new Bluetooth spec, Bluetooth LE Audio, includes a codec called LC3 that is optimized for enabling better audio experiences while using much lower power consumption than classic Bluetooth, and a feature called Auracast that allows for multiple simultaneous pairings. These make it ideal for a device that is worn all day and is vital to a person's ability to function.

The wireless team forged a partnership with an external company that designs and manufactures hearing aids. Intel and the hearing aid company embarked on a joint effort to optimize the experience of using hearing aids with the newest Intel laptops equipped with the new Bluetooth LE Audio standard. The studies the research team conducted with people who wear hearing aids led to a greater understanding of the complex set of problems people experience when using hearing aids with a PC, and this body of knowledge was used to inform the research design of an extensive user trial of the new technology with Intel employees who wear hearing aids (see Figure 3). It was the first of what will likely be several similar partnerships and research efforts to make sure the new standard works seamlessly with all the major hearing aid products.

Figure 4. An Intel press release regarding the low-cost hearing aids being produced. (Photo Credit: ©3DP4ME)

Technology teams are also working to integrate assistive audio in all PCs to go beyond a seamless connection and enhance the audio experience ("Intel Makes Technology More Accessible for People with Hearing Loss" 2023), using insights and opportunities revealed in the research. The ongoing goal is to make sure that a hearing aid user connecting to a PC is getting the best possible experience. Additionally, Intel is working with a non-profit (see Figure 4) to provide extremely low-cost 3D-printed hearing aids to people in developing countries (Aquino 2023), where 97% of people who could benefit from a hearing aid don't have one because they are prohibitively expensive.

CONCLUSION: COMPLEXITY AND SIMPLICITY

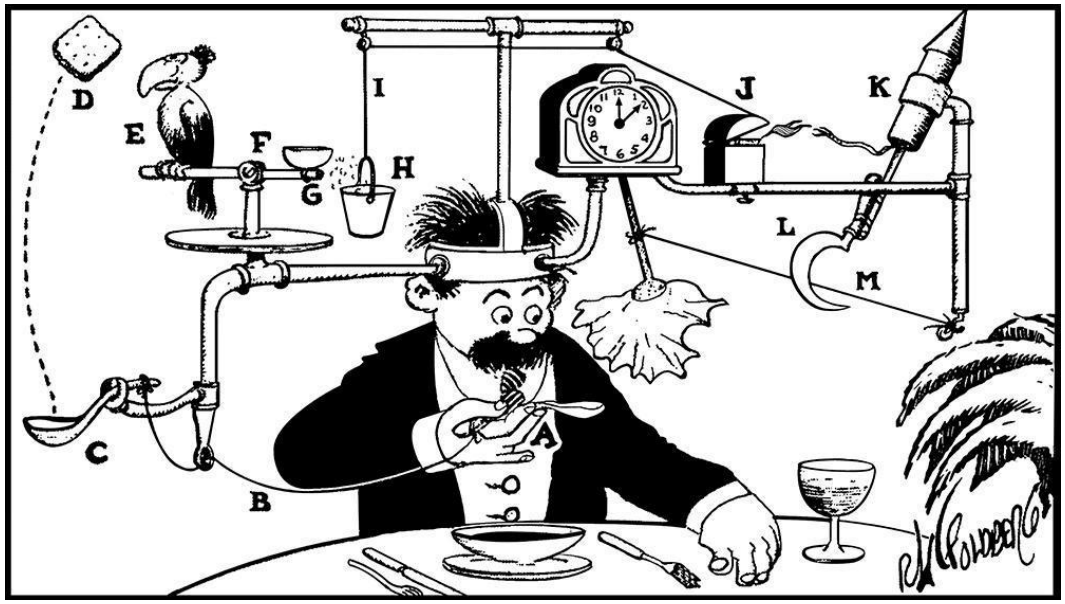

Figure 5. Rube Goldberg's "Self-Operating Napkin," one of the most well-known of the cartoons created by Goldberg depicting complex mechanical systems to accomplish simple tasks.

In our research, we found that the Friction Model is helpful to describe the way interactions consist of numerous factors catching and dragging against one another as people and technical systems try to operate at their desired capacity. Every element in a person's life presents a potential point of resistance when the forces of gravity or motion, in the form of desire or practical need, come up against the tendency of the system to remain static, unchanging, stuck in an inaccessible present. For the people with hearing aids that we spoke to, these points of friction were everywhere and presented sometimes incredibly difficult obstacles. But many of those friction points were not unique to HoH users. They were similar to difficulties that people with situational impairments (Sears et al. 2003) to their hearing must deal with.

Likewise, not all points of friction were negative. For example, the visible tension when Craig could not hear a colleague allowed others to step in and repeat what had been said. The loud noises of the grocery store, a personal unpleasantness for Kerri, meant that she stayed more alert to her surroundings. The friction itself was not wanted, but it allowed, in some cases, for something that was desired to happen. Let's return for a moment to the sled on the table, being pulled by a bucket. Say a contraption, some complicated mechanical invention similar to the one shown in Figure 5, had just poured water into the bucket. If the bucket pulled the sled too quickly, it might roll right off the three toilet paper rolls making up its runners. If the bucket didn't move at all, then the marble would not be released from underneath it

to run down the track and accomplish its task. The sled would need to move with a very precise amount of friction to keep the entire system running as expected. This is the theoretical insight of the Rube Goldberg machine. While looking at just a massless sled on an infinite plane, it is easy to say that all friction hurts the capacity of the sled to move. But once you take a step back, and see the incredibly vast array of factors—bells and whistles, pulleys and levers—that make up any system as complicated as the ones in which we exist today (Linabury 2016), then we can understand that sometimes frictions help us move forward, even if in unconventional ways, as long as they are accounted for and considered. In isolation, friction hinders movement, but in a social or mechanical system a point of friction can be a point of inspiration, a jumping off point, a locus of attention to make sure the friction is properly dealt with. Friction could even inform one's sense of self.

Thus, the complexity of the system is also its strength. The Friction Model was always intended to be, and our fieldwork demonstrated this, a dire oversimplification of the complexity of actual life with a disability. The actual ways that participants, their families, our colleagues, their and our technical systems, and the organizations we acted within all interacted with each other was unbelievably complex. The reality of how this research came to be is more complicated, likely, than any actual Rube Goldberg machine yet imagined or created (although we welcome any digital traces of particularly complex machines). It is remarkable, the ways user's individual machines—their daily lives and workarounds and hearing needs and personal environment—all functioned alone while also being able to play small parts in the larger machine of accessibility research and technical innovation within Intel. We can see now that it is a fractal of machinery: the more closely you look the more elements are revealed and the further you pull back the more you see how far the contraption reaches. Modeling a small piece of the machine allows you to understand the larger functioning of the system, because smaller elements interact with larger elements and the friction of a single part is similar to the movement of the entire arm of the system. This means we have every reason to address those problems which affect individuals and their smaller machines the most deeply, because they give us insight into more general causes of issues. If a problem arises commonly for one type of user, it indicates certain features of the machine's materials—their coefficient of friction as Borg et al. put it—that affect friction points arising everywhere else.

One thing that makes the machine of our world more complicated than any made by Rube Goldberg or those following in his footsteps is the fact that the larger machine is always changing and shifting. We live in a Rube Goldberg machine that is perpetually being built and rebuilt. Thus, it is very difficult to define success or progress in any straightforward or absolute way. The levers move, the force of motion is continued, but when the movement is going in "the right direction" is hard to say. Similarly with our research, there are still many moving pieces, many paths not yet complete. Organizational factors in a company like Intel are always shifting, particularly with economic pressures being what they are today. But nevertheless this

research has delivered a deeper understanding of the factors, big and small, that affect users and the systems they interact with. We see now, just a little, some of the complexity at play. We and other researchers in this space can now take those intricate details of people's lives and needs and pain points and move back towards simplicity. Not the simplicity of a limited model or a quick assumption, but the simplicity of engineering tools and following principles that are informed by the real world and real users. We cannot eliminate all friction in the system, but with these research insights we can understand when to reduce it and when to use it to our advantage and when to simply go around it.

ABOUT THE AUTHORS

Emory James Edwards recently received a Ph.D. in Informatics from the University of California, Irvine. They have collaborated with companies such as Google, Microsoft, Toyota, and Intel and are currently looking for research positions where they can utilize their expertise in qualitative research, accessibility, and user experience.

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Becky Chierichetti is a UX researcher and designer exploring the human side of technology. At Intel, she collaborated with researchers, developers, and engineers to make a more accessible and inclusive world through technology. She brings curiosity, persistence, and playfulness to her work exploring the intersection of physical and digital worlds.

NOTES

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1. All names used for participants in this publication are anonymized.

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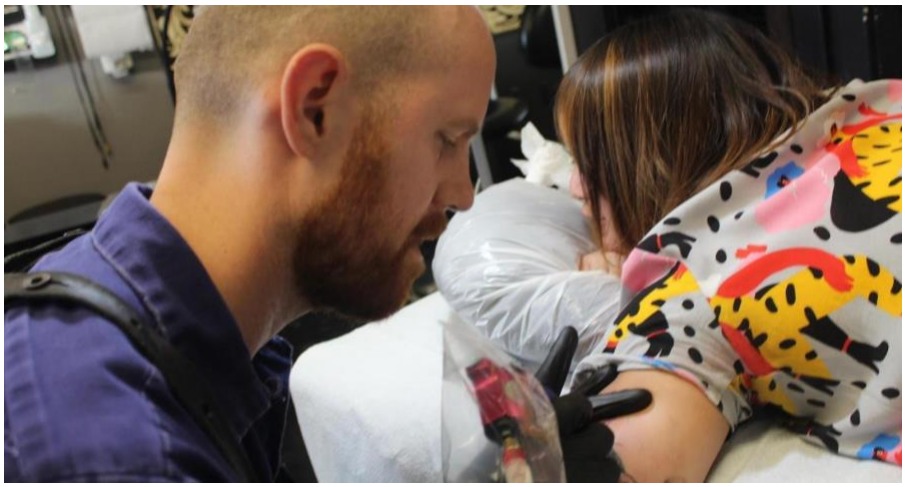
Smelling Fear

How Tattooing Inspired Me to Explain Sensation

DUSTIN KISKADDON, *JP Morgan Chase*



Me tattooing a client during my time as a professional tattoo artist in Oakland, CA

I harness my experience as a tattoo artist to affirm the power of bodies and sensation in ethnography. The talk begins with a moment—me tattooing someone who grows silent, pale, and sweaty. I didn't know he was about to puke, but my mentor did, even though he was six feet away. How did he know, and I didn't?

It's because he could read the sensory cues of his environment. Over time, he learned to detect tiny changes in body odor and, more importantly, to use these changes to succeed at work. I had to do the same thing—or else make permanent mistakes while tattooing the squirming bodies of strangers for money.

As Simon Roberts teaches: Humans variously feel, touch, see, hear, and smell their way through the world. Each job, sport, or culture demands a localized form of sensory knowledge. People new to any scene develop this knowledge through exposure and experience, a process sociologists call "sensory socialization." I affirm the need to explain sensory socialization and wonder aloud: How does this need play-out across ethnographic practices? Are we (and our stakeholders) getting or missing the messages?

Dustin Kiskaddon is a cultural sociologist whose book, *Blood and Lightning: On Becoming a Tattooer* drops February 2024 (Stanford University Press). After a decade of teaching and a few years of professional tattooing, he applies expertise in culture, the economy, and technology to conduct applied research. Kiskaddon.Dustin@gmail.com

Let's Chat!

Prototyping, Productive Frictions, and Radically Restructuring Adolescent Sexual Health Counseling Interactions

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This case study examines the use of iterative prototyping to raise concerns important to adolescents and healthcare providers in the participatory design of an intervention to spark open and nonjudgmental sexual and reproductive health discussions. It describes how designers in an interdisciplinary, academic research center used prototyping to engage adolescents and clinicians as co-designers in formative research. Prototypes were created, tested, and refined in focus groups, intercept interviews, semi-structured interviews, and workshops. Varied in content and form, prototypes caused friction—generating key questions, revealing conflicting perspectives and power dynamics, driving exploration, and design. These frictions radiated from a primary tension—the difference between how sexual and reproductive health care is currently delivered and the kinds of care young people desire and need. The resultant intervention radically restructured the adolescent sexual health counseling interaction, empowering adolescents to set the agenda, overcome issues of hierarchy and mistrust, and enhance engagement in their own healthcare.

Keywords: Health equity, Participatory design, Prototyping, Lived experience, Sexual and reproductive health

INTRODUCTION

The Centers for Disease Control and Prevention (2016) and the American Congress of Obstetricians and Gynecologists (2020) recommend that healthcare providers regularly spend one-on-one time with adolescents, as early as age 11, as a routine part of care. Early adolescence is a critical developmental stage that requires support in fostering autonomy and decision-making skills, especially relative to sexual and reproductive health (SRH) concerns (Blum et al. 2014; Igras et al. 2014). Regular opportunities to confidentially raise matters of concern and ask questions about sensitive topics to a provider encourages access to care for adolescents and may considerably affect their health and well-being. However, many barriers exist to the access of SRH care by adolescents. In addition to fear, embarrassment, stigma and confidentiality (Miller et al. 2014; Coker et al. 2010), adolescents cite judgmental

or unfriendly interactions or distrust of providers as reasons for not seeking care (Johnson et al. 2015; Fox et al. 2010).

This case study describes how a design team in an academic research center created an intervention to spark open and nonjudgmental SRH conversations between adolescents and the providers who care for them. Originally known by its working name, *Cards on the Table*, the intervention was formally named and branded *Let's Chat* by adolescents participating in the last phase of design research; we decided to use the latter in our title to connect it to the finished product and communicate its tone and voice.

Research and design in healthcare rely heavily on qualitative interviewing and often focus on individual behavior. In contrast, this case describes how the use of participatory design with an emphasis on prototyping created a lower-risk approach for less powerful actors—adolescents of color aged 14 to 19—to explore and engage with topics they might otherwise be uncomfortable discussing. As such, it makes an important contribution to ethnographic practice in healthcare by illustrating the ethnomethodological use of prototyping to uncover the norms, understandings, and assumptions around a controversial subject. Prototypes presented topics not historically considered central to SRH care and, as such, brought to light conflicting mental models and existing power differentials. Making frictions explicit was essential to the design of an intervention that sought: (1) to empower adolescents to set their own SRH care agendas and enhance engagement in their own healthcare; and (2) to be acceptable and feasible for healthcare providers to implement.

The case is organized in four main sections. First, as background, we briefly describe the current context of American adolescent sexual and reproductive health (SRH) care and the academic research center where formative research for the case was conducted. In the next section, we describe the relevance of participatory design as a methodological approach to balancing power relations and the use of iterative prototyping to define and develop the intervention. Next, in the findings section, we describe five significant frictions that emerged through iterative prototyping, these include:

1. Who is sexual and reproductive healthcare for?

2. Who defines the parameters of adolescent sexual and reproductive health?

3. Bridging the gap between medically-accurate and adolescent-friendly language

4. Normalizing or stigmatizing—form factor, color coding, and privacy considerations during topic exploration

5. Considering power and privacy during implementation

Finally, we discuss the implications of the frictions to the development of the final instantiation of the intervention now known as *Let's Chat*.

BACKGROUND

This section provides the context needed to position the case more broadly. First, we describe limitations in the delivery of SRH care to adolescents in the United States. Then we situate the case in the innovation practice of an interdisciplinary academic research center on Chicago's south side

Adolescent SRH Care in the United States

The American Academy of Pediatrics suggests routine preventative medical care should include SRH care (Hagan, Shaw, and Duncan 2017). However, most adolescents and young adults do not receive preventative medical care, with even fewer receiving SRH care (Horwitz, Pace, and Ross-Degnan 2018). Structural factors affect adolescent access to care including: inadequate or incorrect information about the location of SRH services or eligibility for care, limited scheduling, cost, the lack of youth-friendly environments, and fears that provider or insurance-related communications will compromise confidential care (Carroll et al. 2012; Hock-Long et al. 2003).

The National Academy of Medicine (formerly the Institute of Medicine) defines patient-centered care as, "providing care that is respectful of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions" (2001, 6). There is strong evidence that when adolescents experience patient-centered care they are more likely to share SRH concerns with their clinician (Nathanson and Becker 1985; Toomey et al. 2016). Yet, most adolescents, especially minority and low-income adolescents, are still not receiving patient-centered SRH care (Fuentes et al. 2018; Toomey et al. 2016). Moreover, studies indicate Black, Latinx, and low-income adolescents and young adults continue to experience medical mistrust, biases, and coercion that affect the access, provision, and uptake of contraceptive care (Gomez and Wapman 2017; Shapiro, Fisher and Diana 1983; Stern 2005). Another study reported transgender youth were more likely to delay care due to LGBTQ-based discrimination than their cisgender peers (Macapagal, Bhatia, and Greene 2016). Persistent disparities reinforce a need to dramatically redesign care delivery to these populations (Fuentes et al. 2018; Martin, Hamilton, and Osterman 2013; Shannon and Klausner 2018).

An Adolescent-Centered Interdisciplinary Academic Research Center

The Center for Interdisciplinary Inquiry and Innovation in Sexual and Reproductive Health (Ci3) is a research center at the University of Chicago that addresses the social and structural determinants of adolescent and young adult sexual health. Ci3 envisions a world in which all youth emerge into adulthood with agency

over their bodies and futures. It is committed to empowering young people, conducting innovative research, and uncovering opportunities for policy and systemic change.

Founded in 2016, the Ci3 Design Lab invited 31 adolescents of color, aged 14 to 20, to engage as experts of their lived experience in a workshop to explore how SRH care might be improved. The lab's first workshop series initiated a longer-term effort to design with and for adolescents in processes that supported mutual learning, the authority of adolescents to have a say (not just a voice), and co-realization—core principles associated with the Scandinavian PD tradition (Geppert 2023; Simonsen and Robertson 2013). Workshop participants created low-fidelity prototypes that were later triangulated with other workshop data during analysis by the Ci3 design team. Analysis resulted in seven design principles that became the foundation for an emergent adolescent SRH platform and brand, now known as *Hello Greenlight*. Because the principles would focus the team on how SRH needed to change from the perspectives of adolescents and drive idea generation for the emergent platform, they were deemed "meta-design principles" as "meta" can refer to both transformation and the need to critically address the current state of a discipline (Merriam-Webster 2023).

The *Hello Greenlight* meta-design principles were used to develop "How might we…?" prompts for a series of ideation sessions. Stakeholders—adolescents, healthcare providers, subject-matter experts, and institutional leaders—were then recruited to small groups matched to a relevant subset of prompts that were explored in a single ideation session. Ideas generated across all sessions were aggregated, analyzed, and consolidated by the Ci3 design team resulting in 61 distinct concepts. Each concept was then reviewed, marked-up with feedback, and ranked during separate meetings of the Ci3 adolescent and provider advisory councils. Conceived in an ideation session focused on building trusting relationships between providers and patients, the concept "Put your cards on the table" was ranked highest by both advisory councils. It was subsequently prioritized for further exploration by the Ci3 design team, who had already created and tested an initial prototype. Immediately shortened to "Cards on the Table (CoT)," the concept presupposed that an adolescent may not feel confident raising SRH topics or specific questions with their healthcare provider and aimed to build adolescent confidence, agency, and SRH knowledge. The concept was described as follows:

> An adolescent is given a deck of cards upon registration that describe questions, concerns, or "hot topics," and asked to select those of interest to them. The adolescent hands the selected cards to the healthcare provider during their patient visit to help steer the conversation for the visit (example topics: my anatomy, sexual orientation, contraception, anal sex, dental dams, orgasm, et cetera).

Despite the positive evaluation of the concept by the adolescents and provider advisory councils, more research was required. For instance, we did not know the full

scope of SRH information desired by adolescents including the kinds of care (i.e., categories in the deck) they felt must be represented to constitute comprehensive SRH; or the range and number of questions within any given category and their level of specificity. And, once adolescents determined criteria for the latter, we needed to explore and understand how this information may or may not be acceptable to healthcare providers. Additionally, we needed to understand with greater nuance how the intervention should be structured to be feasible for implementation in clinical settings which meant exploring a variety of potential form factors, how they affected adolescent counseling experiences, and the ways they may or may not fit into different clinic workflows. The next section will describe how iterative prototyping and prototypes were employed to define and develop *Cards on the Table*.

METHODOLOGY

The above limitations of SRH care underscore the need to create equitable, accessible, and acceptable patient-centered adolescent SRH care. To address the significant power differential between adolescents and providers, intervention development was informed by the principles and ethics of Scandinavian participatory design (PD). PD is a political tradition concerned with equalizing power relations through the "genuine participation" of less powerful actors in the design process (Robertson and Simonsen 2013). Unlike one-way data collection techniques, such as observation or key informant interviews, participation is genuine when there is opportunity for mutual learning—that is, opportunity for participants and designers to learn enough about each other's worlds relative to a specific matter of concern. In PD, this kind of two-way learning is often facilitated through prototyping—the use of tangible artifacts—to co-construct and debate potential affordances and/or consequences of an idea, otherwise known as "co-realization" (Blomberg and Karasti 2013; Bratteteig et al. 2013). Blomberg and Karasti (2013:99) suggest that co-realization "integrates ethnomethodology's analytic mentality" with PD's practical orientation "to achieve 'design-in-use.'" Kensing (1983) argues that in order for participation to be genuine, less powerful actors must have access to: (1) information, (2) resources—including, for instance, time, money, and expert assistance—and (3) decision-making power (i.e., having a say, not just a voice). The quality of the latter affects not only the procedures of participation, but also the experience of participation by less powerful actors (Geppert 2023).

In the case of *Let's Chat*, formative research was conducted with adolescents ages 14 to 19 (n=82) and healthcare providers (n=31) who were engaged as co-designers in a PD process that relied heavily on prototyping as an activity (Hillgren, Seravalli, and Emilson 2011) to iteratively explore research questions and/or specific issues through concrete manifestations (Bødker and Grønbaek 1991). Formative research was conducted in four phases. This case study is bound to the first three phases as these research activities revealed frictions that were central to the ongoing

development of *Cards on the Table* (now known as *Let's Chat)*. The methods used in the first three phases and their sub-phases are described below.

Phase 0: Determining merit within Ci3

In short, the phrase "put your cards on the table" encapsulated the ethos of the proposed intervention such that a cardholder should have: (1) access a range of relevant SRH topics, associated vocabulary, and questions; (2) the power to decide which topics and questions are relevant to them; and (3) the opportunity to hand their questions to another person who can answer with medically accurate information (e.g., healthcare provider, sex educator, parent, trusted adult, etc.). Organized in this way, the proposed intervention shifts the power hierarchy and makes space for adolescent confidence, agency, and sexual health-related knowledge. Directly following the ideation session where *Cards on the Table* originated, which did not include adolescents, the Ci3 design team decided it was an easy concept to prototype and test with adolescents to determine if it had merit.

Here, it is important to note that despite the strong imagery, the phrase "put your cards on the table" evoked, it was only meant to keep the ethos of the intervention in focus, it was not a design dictate for the final instantiation. That said, the phrase made obvious how an initial prototype could be organized to communicate units of SRH information. The first prototype was designed as a card sorting activity (Martin and Hanington 2012; Spencer 2009); each card presented a SRH question, with the goal for the deck of cards to span relevant topics and information, generate curiosity, and prompt question asking. Because the Ci3 design team was solution agnostic, the first prototype served as a boundary object. Susan Leigh Star states:

> Boundary objects are those scientific objects which both inhabit several communities of practice and satisfy the informational requirements of each of them. Boundary objects are thus objects which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. These objects may be abstract or concrete. (Star 2015, 157)

The initial prototype was tested with three small focus groups comprised of Ci3 youth advisory council members (n=11), who were introduced to the concept goals, context of use, and then invited to explore 23 SRH questions printed on separate cards. After becoming familiar with the questions, each group was asked to sort each card into one of three categories—"like", "dislike", or "don't understand or confusing"—and write down any questions they would like to add using blank cards, if desired. Afterwards, each group discussed their choices with the facilitator, a Ci3 design team member.

The final card sorts from each focus group were photographed after the discussion was completed and the facilitators met to debrief and further document

discussion themes; documentation was later triangulated and used to inform the design research brief for phase 2.

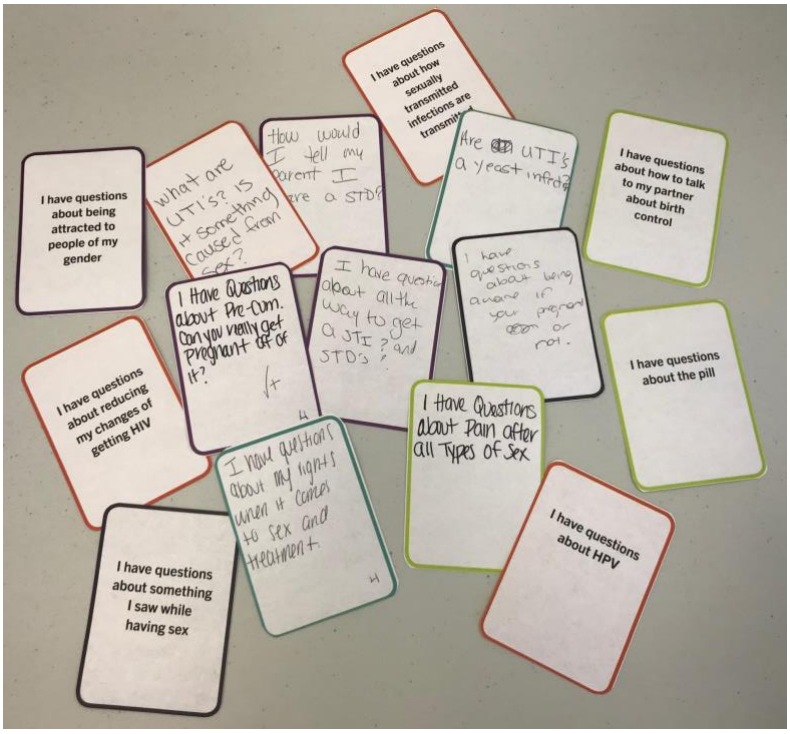

Figure 1. Example of phase 0 prototype content.

Phase 1: Determining Merit External to Ci3

The Ci3 design team was invited to participate in two adolescent-led, health-related, community pop-up events organized through a community-based organization with a longstanding history of developing youth to be empowered, informed, and active citizens who will promote a just and equitable society. Focused on holistic self-care, the events sought to provide access to a range of resources relevant to adolescents and their families including, for instance, cooking and fitness classes, introductions to local healthcare institutions and family planning services, and the opportunity to sign up for Medicaid. The pop-ups that Ci3 attended were held in neighborhoods located on Chicago's west side, the population of one community was majority Black (non-Hispanic) and the other predominantly Hispanic/Latino (any race).

Ci3 welcomed the high school-aged participants to learn about Ci3 and how we used PD to improve SRH with and for adolescents using *Cards on the Table* as an example. We encouraged pop-up participants to pick up the deck as we explained the

goals and context of use of the concept and how their feedback could help our team decide if the concept was worthwhile and merited full development. If a participant was interested in helping (n=50), using the same deck as in phase 0, they were asked to sort the cards, into one of three categories,—"like", "dislike", or "don't understand or confusing"—and offered blank cards to write down any questions they would like to add, if desired. After the cards were sorted, given time constraints, participants were only asked to discuss the questions they placed in the "dislike", or "don't understand or confusing" categories. The final card sorts were photographed, facilitators wrote down headlines following the event, and the team met to debrief and discuss themes, with additional observations and insights documented in meeting notes; documentation was later triangulated and used to inform the design research brief for phase 2.

Phase 2: Co-Designing with Stakeholders

Both phases above provided evidence indicating the potential acceptability of *Cards on the Table* to initiate SRH conversations and with this Ci3 leadership approved the formal development of the intervention. The second phase of prototyping began with five research questions, these included:

1. What content speaks to the most common SRH concerns, while embracing a wide range of topics?
2. How might we balance using language that resonates with adolescents and medically accurate terminology?
3. What are the different ways that adolescents might use the intervention? For instance, will questions in the deck spark new questions because the former provides young people new vocabulary to draw on?
4. For what age groups and contexts of use is the intervention appropriate?
5. What advantages does the intervention offer healthcare providers? How is it beneficial rather than a burden?

In phase 2, questions and categories were further refined, and back-of-card content was drafted to provide cursory information, not a comprehensive answer, about a question (see Figure 2). The rationale for this approach was to give just enough information for an adolescent to determine if it was a question they would like to ask since they may not yet have the vocabulary to describe their SRH concern. There were six different content prototypes in this phase, with the number of cards in each deck ranging from 40 to 56. In addition to the deck of cards, the Ci3 design team created 11 physical prototypes to explore different ways the form factor might support content filtering and privacy.

Phase 2 design research was conducted in three sub-phases. In sub-phase A, healthcare providers who cared for adolescents (n=20) were recruited for semi-structured interviews and a card sorting activity. Participating providers included: obstetricians/gynecologists (n=2), nurse midwives (n=2), pediatricians (n=3),

residents (n=5), advanced practice nurses (n=3), medical assistants (n=3), a psychologist, and a social worker.

Figure 2. Phase 2 *Cards on the Table* prototype anatomy.

Sub-phase A ran parallel to the other sub-phases. And, lastly, in sub-phase C, we recruited adolescents (n=12) from the Chicagoland area to a workshop that included mock consultations with healthcare providers. Data collected from each sub-phase was analyzed in an ongoing manner to inform iterations of content and culminated in a Ci3 design team synthesis session to consolidate learnings toward finalizing the intervention design in phase 3. The design research findings from phases 0, 1, and 2, are described in the next section.

FINDINGS

A primary tension defined intervention development: the difference between how adolescent SRH care is currently provided and the kinds of care adolescents desire and need. From here, frictions radiated and caused debate as prototypes were tested with a variety of stakeholders. Frictions intersect across a variety of mental models connected to intervention framing, communication strategy, and delivery, and as a result they are not mutually exclusive to one dimension or another. The next section describes five frictions foregrounded as stakeholders tested prototypes based on an analysis of the data collected during the formative research phases described above. The frictions include:

1. Who is sexual and reproductive healthcare for?
2. Who defines the parameters of adolescent sexual and reproductive health?
3. Bridging the gap between medically-accurate and adolescent-friendly language
4. Normalizing or stigmatizing—form factor, color coding, and privacy considerations during topic exploration
5. Considering power and privacy during implementation

Friction 1: Who is Sexual and Reproductive Healthcare For?

Historically, health care has emphasized the biological aspects of SRH, from menstruation, contraception, and pregnancy to sexually transmitted infections (STIs) and diseases (STDs), with SRH care prioritizing cisgender, heterosexual, female bodies. This framing places an undue responsibility for the emotional, intellectual, and physical labor involved in making SRH decisions on cisgender, heterosexual girls and women. In doing so, it excludes a significant proportion of the population who may desire and benefit from more robust engagement with SRH information and care including cisgender boys and men as well as lesbian, gay, bisexual, pansexual, transgender, queer, and nonbinary individuals.

In contrast to the historical framing of SRH, an expansive view of SRH informed prototype content in all phases of design research. While giving feedback on a *Cards on the Table* prototype, a pediatric resident noted, "I think providers don't ask males about sexual and reproductive health as much because medicine and

society is so focused on contraception." Young men who participated in prototyping were well aware of this dynamic and how it left them in the dark despite their curiosity. One male participant noted, "When I ask my doctor about things like [the difference between HPV and HIV], there are limitations to his answer because he knows cervical cancer and things like that don't relate to me."

Cards about gender identity and sexual orientation included questions about being attracted to people of one's own sex or gender, gender dysphoria, and gender transition. Some adolescents who participated in prototype testing were ambivalent about the inclusion of these topics because they were not personally relevant, felt it was deeply personal information, or felt the topics belonged to discussions with a psychologist or social worker. On the other hand, some adolescents recognized these topics could be a matter of life or death for their peers. For some, the topics were right on time. For instance, one adolescent exclaimed, "Girl condoms, is this a thing?!" She noted she had a first girlfriend who, like her, had only also dated guys and felt that she did not know what she needed to know so *Cards on the Table* facilitated her thinking. One medical assistant was uncertain about the inclusion of the gender identity and sexual orientation topics because they did not think adolescents could decide on this until they were older. Yet, a different medical assistant in the same practice shared that he "always tries to make trans patients feel welcome and respects pronouns." In summary, healthcare providers who tested a prototype of *Cards on the Table* displayed a variety of reactions to the inclusion of these topics, revealing frictions within the medical community. The majority of providers were open, if hesitant, to the inclusion of these topics, but indicated they might not be prepared to answer them due to personal discomfort and/or a lack of training—nor would their peers.

Friction 2: Who Defines the Parameters of Adolescent Sexual and Reproductive Health?

SRH often intersects with broader concepts of identity, social-emotional well-being and social determinants of health, which often go unaddressed in traditional SRH education and counseling. In several instances, content that addressed these concepts challenged healthcare providers accustomed to a biomedical model of healthcare that offers "just enough" information to adolescents.

For example, the intervention included the topic of feeling pleasure during sex and orgasms in the sexual well-being category. One medical assistant responded, "I don't think asking about feeling pleasure is an appropriate question. Young people don't know what they're doing." Another medical assistant agreed that the question was not appropriate with the rationale that talking about pleasure during sex would make adolescents want to have sex. On the other hand, a provider specializing in pediatric and adolescent gynecology adamantly argued that there is reliable data to support:

> …providing condoms doesn't increase sexual activity and providing emergency contraception in advance does not lead to more sexual behaviors. Exposure to knowledge is the best way to get more comfortable with these issues. Providers need to broaden their horizons.

The intervention also addressed social determinants of health in the self-care category, which included content regarding sexual abuse or assault, mental health, body image, self-harm and suicide, to food and housing insecurity. An advanced practice nurse noted that questions in this category "are valuable because though they're not about SRH, they could bring up things related to SRH or increased risk."

Providers responded more favorably to the inclusion of these topics because current screening tools may not capture sufficient nuance. However, providers also noted they weren't necessarily prepared with resources to answer questions about them. A provider who specializes in pediatric and adolescent medicine pointed out that *Cards on the Table* "covers a lot of the things that aren't necessarily *directly* addressed on the Bright Futures form," an assessment tool universally recommended for adolescents 12 and older to screen for developmental concerns; behavioral, social, or emotional concerns; maternal depression; adolescent depression and suicide risk; substance use; and oral health concerns. The same provider continued, Bright Futures is:

> ...a little bit broad-based. As a clinician, it's a little bit cumbersome to get through... in a perfect world. You have a kid, they check in, they're flipping through this [*Cards on the Table*]. They pick their three cards. They hand them to the MA [medical assistant] or the nurse who is trained to answer these questions... [For instance, the] question on "Where can I get free contraception?" Well, since a lot of Title X funding is going away, I don't know the answer to that anymore, but those are things where resources can be provided. "Where can I get condoms?" Great! The nurse goes and grabs a bag full of condoms in a discreet bag and says, "Here, put this in your backpack." ... So, it helps to do some targeted anticipatory guidance, rather than just vomit anticipatory guidance about [for instance,] no more than two hours of screen time and to make sure that you're eating five servings of fruits and vegetables and that you're getting 10 hours of sleep…

A third provider noted the topics were good and suggested adding content about parents, dealing with cyber/online/social media issues, such as sharing explicit photos on Snapchat.

Friction 3: Bridging the Gap Between Medically Accurate and Adolescent Friendly Language

Adolescents can find it difficult to access quality, medically accurate, and adolescent-friendly SRH information on their own. *Cards on the Table* sought to put relevant SRH topics and terms in the hands of adolescents at an opportune moment when their questions could be answered by a qualified professional. At the same

time, adolescents have shared that medically accurate information can be overwhelming or boring, and though it is specific and helpful to healthcare providers, it can represent a barrier to understanding and cultivating rapport with adolescents. *Cards on the Table* sought to bridge this communication gap by creating questions and introductory content accessible enough to an adolescent population that they could signal the topics they want more information about and start conversations with their provider.

In particular, word choice arose as a tension. In phase 2, a medical assistant suggested "that patients might feel creepy" about the word masturbation. A general pediatrician shared:

> At least a couple of times, I've asked kids before the [physical] exam, "Are you having a discharge?" And, they'll say, "No." And I examine, and they're having florid discharge. You're like [to yourself], "How did they not know that?" So, kids don't always know. I mean they may not pick this card because they just don't know… Could it be the word "discharge"? I say, "Is something coming out of your penis that's not urine?" I actually put it that way. So that should be pretty obvious… Words are important.

During phase 0 and 1 prototype testing, adolescents indicated that they use different words for anatomy, and many, especially males, did not know what acronyms like IUD and HPV meant. In phase 2, during an activity completed by adolescents during the mock consultation workshop, they called out words or phrases they did not know and suggested less technical terms or wording they thought would be better. Instead of "masturbation," they suggested, for instance, "playing with yourself," "pleasing yourself," and "jerking off." Instead of the "morning after pill," participants were more familiar with "Plan B." Many participants recommended other options for "disease transmission," including "spread," "passed along," or "passed on." For the word "disclose," participants shared that either "talk about," or "reveal," would be more easily understood.

Friction 4: Normalizing or Stigmatizing—Form Factor, Color Coding, and Privacy Considerations During Topic Exploration

Cards on the Table wanted to promote curiosity and exploration of SRH topics in a manner that did not cause fear or shame, ideally normalizing sexual health terms, information, and questions. To that end, the seven categories of care presented in the intervention were color-coded to improve browsing. During phase 2, the Ci3 design team tested two form factors with adolescents and providers—the deck of cards, and another form called "Cards on the Wall" (pictured below), which presented each of the questions as individual tear sheets, analogous to a prescription pad used by healthcare providers. Both form factors had different affordances for scanning categories and questions which surfaced new tensions across stakeholders.

Figure 3. *Cards on the Wall* prototype.

Universally, healthcare providers agreed that *Cards on the Wall* took up too much space in an outpatient setting where exam rooms are shared by different specialties. For the intervention to work, providers said it must be portable and easily shared with and collected from patients, or use a technology common to both stakeholders. In contrast, adolescents preferred a wall installation over a card deck because the content was easier to scan and they could easily manage the questions they tore off and take them home. In general, adolescents thought it was awkward to sort through the card deck because the exam room lacked a surface to support the activity. Regardless of form factor, adolescents stated they would be less comfortable or would not engage with the intervention if a parent was present. A provider specialized in pediatric and adolescent gynecology discussed their conflicting thoughts about the color coding:

> …anytime you recognize there are categories, I think it could be distractive. People could feel bad about having a lot of questions about a specific category… from the patient point of view, they could spend time on what those colors have in common and get distracted from the actual purpose.

In contrast, adolescents found color coding helpful in identifying categories that were relevant to them or exploring categories that they did not know anything about.

Friction 5: Considering power and privacy during implementation

For the intervention to be effective, it would need to be both acceptable to adolescents and healthcare providers and feasible to implement in different clinic workflows. Prototype testing revealed that power dynamics differed depending on how the intervention was implemented. If, for instance, the deck of cards was offered to adolescent patients upon check-in, a parent or caregiver might prevent the adolescent from using it. By contrast, if healthcare providers managed the deck and handed it to an adolescent after a parent or caregiver had stepped out for the one-on-one time recommended by ACOG and the CDC, an adolescent could decide to engage with it or not. If providers managed the deck, adolescents feared one or both of two scenarios: (1) cards in the deck might get lost over time (a fear also mirrored by healthcare providers); and (2) a provider might choose to filter out cards they felt were inappropriate. Either way, from the perspective of adolescents, when cards that were intended to be part of the deck were not included, essential SRH information was not readily accessible to their peers. Many adolescents indicated that they preferred to have access to the deck at check-in so they could browse while waiting to be roomed. Some providers noted, however, the best time would be when the patient is being roomed to avoid adding more work by administrative staff at check-in.

After browsing, adolescent patients were invited to select up to three cards for discussion. Some adolescents expressed the importance of handing the cards directly to the provider to initiate the discussion and so the cards could be referenced together. One provider felt that there may be adolescents who might be more comfortable with a passive interaction, like putting the cards in a slot outside of the exam room or completing a checklist instead of directly sharing three specific cards. Additionally, this provider noted:

> I would like to have the opportunity to look at the cards before going in, to know what topics were chosen before going in the room. Because if I need to look something up, I can be prepared. No one wants to look like they don't know what they are talking about.

This reflection echoed the feelings of many other providers. On average, using *Cards on the Table* added an additional four minutes to a fifteen-minute appointment time when young people selected three cards or less. One adolescent shared that the intervention included "the right number of cards. It didn't feel like too much or too little and was easy to use." Despite noting the relevancy of the categories, some providers expressed concern about the number of questions.

CONCLUSION

Prototype testing uncovered a diversity of perspectives about what constitutes relevant and acceptable SRH topics as well as intervention characteristics that could affect accessibility and feasibility during implementation in healthcare settings. When these perspectives were at odds, the frictions they produced delineated the boundaries of the design space from the viewpoints of both less and more powerful actors, thus democratizing how that space was constructed. As the Ci3 design team moved into the third and final phase of formative research (to be described in a subsequent publication), we did so with intention and recognition that the design of the final intervention would not be able to reconcile or mitigate all of the frictions that emerged in phases 0, 1, and 2.

This case described how the use of participatory design with an emphasis on prototyping expanded the epistemic authority of adolescents in the design of a healthcare intervention. This approach could be extrapolated to other ethnographic studies in other fields when two or more groups of stakeholders have an extreme power differential as a way to surface and lean into frictions and ensure that power dynamics are disrupted. The inclusion of less powerful actors in design research processes can redistribute power and social relations and support mutual learning to ensure design research is strategically useful to challenging social and structural disparities that affect health equity.

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Dynamics of Power and Agency

The session explores how points of friction can shift power within and among people and institutions.

Discussant: Jillian Powers, *Responsible AI, JP Morgan Chase & Co.*

Friction as Sneaky Power

TED MCCARTHY

Friction frequently presents as a mere by-product of daily life, the innocent outcome of inefficiency or ambivalence. But it can also be employed to powerful ends, and with intent—by individuals, organizations, corporations and governments. The world is in fact rife with expressions of clandestine power masquerading as accidental frictions: designs of technology, bureaucracy and policy that guide behavior without explicitly stating an intent to do so. These "sneaky frictions" allow the individuals or organizations employing them to express power while retaining an air of innocence, and defying critique. We researchers are uniquely equipped to identify and ameliorate these frictions. How might we better do so—or perhaps even employ them ourselves?

The Sound of Friction

How to Do Things with Listening

MICHAEL G. POWELL, *Practica Group*

This paper is an examination of ethnographic listening from an ethnographic perspective. Its guiding theme is that while listening is typically understood as a passive method or pathway to receive information and take notice of the world, ethnographic listening is unique and potentially productive. Despite recognizing the foundational nature of listening to our work, professional ethnographers typically do not highlight listening as part of our work. The paper is a prompt and provocation for professional ethnographers to consider new directions and new forms for listening, including directions inspired by the work of artists, musicians, and sonic activists. Specifically, the paper will explore unique ways that ethnographers listen and consider how listening-based methods might be integrated into all steps of a professional research project. Examples of listening-based methodological innovations are documented, as are suggestions for further avenues for creative exploration.
Keywords: Ethnographic Listening, Methodology, Sound, Reciprocity

In early 2020, I was working on a yearlong ethnographic team project on Latino voting practices in Texas among eligible citizens. The project was envisioned and led by my colleague, Cecilia Balli, PhD, founder of Culture Concepts. After completing over 100 ethnographic interviews in 5 sites, the vast majority conducted by Cecilia and Monica Lugo, PhD, our small team was deep into analysis when the pandemic escalated. Our client, the Texas Organizing Project Education Fund, requested we reach out to only the non-voters previously interviewed to find out whether the pandemic and its government responses changed their perspective on voting practices. It did.

Two things became clear in these follow-ups. First, we reconfirmed an initial insight, that these non-voters felt politically disempowered and lacked a sense of belonging to American political life. They believed politicians did not listen to them; their voices were effectively silenced. This sentiment was echoed in many interviews with Texas Latinos, whether voters or not (see Balli, Powell, Lugo 2020). As one Latina who only recently began voting explained:

> The reason why I haven't voted is because I was always raised like, 'It doesn't matter if you vote. It doesn't matter if you speak up because they're never going to listen to you. You're a minority, they're always going to see you as less.' (30)

People who found a pathway towards empowerment and belonging—often through connection to social institutions found in education, local communities, politics, or work—were more likely to vote. As we explained, people who vote tend to feel "they have a right to be heard, they believe they can influence political outcomes, and they're able to directly relate government policy to their lives" (21).

Second, we found that listening closely to these citizens and prompting them to articulate their perspectives on political behaviors made a tangible change: many nonvoters now planned to vote as a result of the Culture Concepts ethnographic interviews. One nonvoter in San Antonio explained, "Maybe it has a lot to do with the conversation and the interview that I had [with you], to just bring awareness [that] our vote does matter" (90). And another stated, following a logic that echoed patterns of inquiry during the interviews:

> Yes. I voted in the primaries. I think our last interview motivated me to be more active in that. I did my research and I was very proud of myself…I think it was thinking about the types of candidates that I want to see in office, and if I don't actively participate in trying to put—even if it's not the ideal person, or somebody who is completely aligned with what I want to see or what I believe—being able to choose somebody, even if they don't get elected. Like, 'Okay, well, I made an effort. I didn't just allow somebody else to make a choice for me or completely disregard this opportunity that I have.' (90)

This was a surprising result, because our ethnographic interviewing methodology steered researchers away from judgmental positions and our interview guide *made no suggestion to vote*. In sharing our research agenda, we simply explained that we were trying to understand voting proclivities among Latinos. But the impact was also counter-intuitive in a more fundamental way: How could listening provoke change like this? Isn't listening a passive act?

Regardless of this common sense, our final report recommended that future voter outreach programs prioritize "authentically listening to the political interests and everyday challenges of Latinos" (5). Rather than telling people to vote—a message participants had been hearing for many years—a more effective pathway to voting might be found through *listening*.

The voter study prompted me to investigate listening more deeply and explore some fundamental questions about the nature of listening. This paper represents a first step in that exploration, an examination of ethnographic listening from an ethnographic perspective. My guiding theme is that while listening is typically understood as a method or pathway to receive information and take notice of the world, I have found instead that ethnographic listening is unique and potentially productive. Not unlike the way some words and utterances are understood by linguists as performatives (Austin 1962), we might similarly recognize the capacity for ethnographic listening to do things in the world. This paper points to ways ethnographic listening might do things. It addresses why professional ethnographers typically don't pursue these avenues despite recognizing the foundational nature of listening to our work and, most importantly, how we might deploy our unique style of listening in diverse ways.

I understand "ethnographic listening" as a multi-dimensional process of knowledge-production, which has the capacity to produce reciprocal insights for our research participants and partners. This is not to say that ethnographers are "better"

or more empathetic listeners, it's that we listen in particular ways. Ethnographic listening is activated in different modalities of methodology, data collection, and analytical thinking, especially through interviewing, engagement with soundscapes, and concentrated attention or thought given to research data. Listening in this way doesn't only happen during research, but can potentially be deployed in multiple locations and points of our process.

This concept iterates on what Forsey (2010) has called the largely unacknowledged practice of "participant listening" in ethnographic research, which he distinguishes from the traditional legacy of participant observation—a long cherished but increasingly outdated and imprecise description of what most ethnographers actually *do* in fieldwork, especially in contemporary "interview societies" (Silverman 1997, Gubrium and Holstein 2002) where social interactions are often "spatially dislocated, time-bounded and characterized by intimacy at a distance" (Forsey 2010: 566, referring also to Hockey 2002: 211, Passaro 1997). This concept of ethnographic listening is inspired by, but not limited to, ethnographic interviewing methods, particularly in the distinction between ethnographic interviewing and extractive approaches of data collection found in other, more structured research methods. Rather than extracting information from participants, ethnographic interviewing ideally relies on the co-creation of emergent concepts and the mutual production of knowledge (Briggs 1986, Gubrium and Holstein 2002). In an ideal version of this relationship, ethnographers might hope to serve as a guide, helping research participants explore territories of knowledge they hadn't given much thought to, had taken for granted, or may simply struggle to put into words.

Through innovations in research design and methodology, we might position ethnographic listening to more intentionally create opportunities for reciprocity. Even when the interests or agendas of our research goals and research participants diverge, ethnographic listening encounters may nonetheless generate *unwieldy* insights for participants. The act of listening is core to the possibility of what might be unleashed. This aligns with what Paul Ratliff has called "collateral revelation" in his enduringly honest PechaKucha from EPIC 2014, which pointed to the unintentional impact of many professional ethnography projects on research participants:

> We don't go into the field to midwife individual discovery or revelation, and this may be why we don't notice how often it happens. We change people. We change their minds, their behaviors, their understanding of themselves. (Ratliff 2014)

Through listening, ethnographers can similarly feed back into our participants' thought processes, potentially energizing domains of local knowledge and helping draw connections that had not yet been fully associated. And this same reciprocity might also feed back into relationships with our clients, stakeholders, partners, colleagues, and others in the organizations we work for or with.

Listening is an ethnographic superpower, and in this paper I will point to ways we might harness this energy. The first part of this paper synthesizes EPIC

community perspectives on listening, based on original research. That includes formal and informal interviews with more than two dozen practitioners, in order to gather a diverse range of perspectives on how we listen and develop a subject model of ethnographic listening. I also produced EPIC events focused on listening to gauge community responses, as well as developing and leading an EPIC course on ethnographic interviewing. And to prompt further analytical discussion and reflection, I organized an EPIC-sponsored panel on ethnographic listening at the 2023 Society for Applied Anthropology conference. I am deeply grateful for the wealth of insights that the EPIC community has shared with me about listening, which has inspired deeper investigation, and especially the willingness of some individuals to participate in experimental listening methods described below.

While Part One of the paper on existing practices makes sense of ethnographic listening and demonstrates its value, the section also suggests the inherent frictions that prevent us from highlighting or even fully accepting our role as listeners. Part Two is a prompt and provocation for professional ethnographers to consider new directions and new forms for listening, including directions inspired by the work of artists, musicians, and sonic activists. Specifically, I will explore the unique ways that ethnographers listen and consider how listening-based methods—traditionally framed as a mode of data collection—might be integrated into all steps of a professional research project. At the end, I provide examples of listening-based methodological innovations I have orchestrated and suggest further avenues for creative exploration.

THE SOUND OF FRICTION

On the heels of the Latino voter study, I connected with the Practica Group to work on ethnographic research projects. That's where I met Michael Donovan, PhD, Founding Partner at Practica. We worked on numerous projects together, based on ethnographic observations and conducting dozens of interviews together.

More than a year prior to this essay, as I was forming my research project around ethnographic listening, Mike was one of the first ethnographers I spoke to. He found the concept fascinating (as a curious person at heart, this was often the case!). And so I asked him, "You've been doing this kind of work for a long time, do you consider yourself a professional listener?"

"No," he replied, eyebrow raised. "I never really thought of myself that way. But it could make sense. I don't even know if I'm a good listener."

"Mike, I've sat in on so many interviews with you. You're one of the best listeners I've ever met!"

We talked then, and in later conversations, about ethnographic listening, as well as the ways our projects, proposals, and conversations with clients tended to obfuscate listening—a skill which we both agreed is fundamental to ethnography.

In late 2022, Mike died suddenly. In his obituary, written by his family, I was heartened to read, "Michael had a capacity to listen with deep empathy and to discover underlying meanings and connections." Mike was truly masterful at the craft of ethnography and his instinct for listening was felt, if not always foregrounded.

I write about Mike Donovan because a lot of the EPIC community shares his acumen (even if he was a better listener than most of us). Despite our listening expertise and the foundational nature of listening to our work, most EPIC practitioners don't highlight listening for colleagues, stakeholders, organizations we work with, clients we work for, or even for ourselves.

This section outlines that tension among professional ethnographers which emerged during my research. Listening is essential to our work, but we don't typically describe our work through the lens of listening. Why the friction?

In talking with the EPIC community, two consistent themes quickly emerged—and a third underlying theme lurked near the surface. First, all agree: listening is a core skill. As one ethnographer put it, "listening is foundational to what I do." At the same time, listening is not part of how we represent ourselves, identify our work, market ourselves, or develop our projects (with just one exception among dozens interviewed). By and large, we lack the vocabulary to explain listening and what it might do for us.

A third underlying theme is that ethnographers tend to understand listening primarily through an inward lens. We recognize ourselves as listeners, but rarely acknowledge the impact our listening might have on others. Put another way, we know listening changes the ethnographer, it is felt deeply. But we're unsure if our participants or colleagues share a similar response. We rarely consider and may frequently underestimate the ways our careful and concerted listening practices can be framed as relational, situated, and integral to the co-production of knowledge with our subjects.

Practitioners don't necessarily define themselves as "good" listeners, rather they point to a loose sense that ethnographic listening is distinct. Through experience and training, they have cultivated a style and a distinctive way of listening, or what might be called a "genre of listening" (Marsilli-Vargas 2022). For instance, one ethnographer explained, "It's very difficult to empty your mind and leave yourself open [for listening]." Another struggled to explain to what makes their style of listening distinct:

> Listening is an invisible skill. Most of my clients just think I'm a sociable, friendly guy. And I am, but it's not as easy as it looks…As listeners, as ethnographers, we're weird mediators of sorts. Ideally, we're unnecessary. Our job shouldn't even be necessary. Listening should be easy.

More generally, these statements suggest something deeply elusive about the listening process. One ethnographer called it "mysterious," even.

Lacking a shared definition or vocabulary for making sense of listening, ethnographers instead pointed to dynamic processual, structural, and relational descriptions. One practitioner explained listening in terms of care and willingness to learn from participants:

> I was changed by listening…What do we talk about when we talk about listening? Listening is love. It's collaboration… Don't listen unless you're willing to be changed. You have to be open, receptive. You have to be willing to say: what they're telling me is true, just believe.

And for many professional ethnographers, the force of listening is especially felt through the way that listening engenders and embodies reciprocity:

> Listening is a kind of gift. You're giving them your ear…People will unburden themselves to a stranger's ear…You take on a lot of the other person's emotional load.

This then is perhaps the ideal and aspirational goal for ethnographic listening: to build relationships defined by mutually beneficial exchange between researchers and our research participants.

Listening is often a deeply emotional experience for ethnographers, rooted in patient engagement with the people, practices, and environments we study. As such, there is a meaningful resonance in listening, an instant recognition of some cultural and emotional weight. Clifford Geertz has described this type of "force" as, "the thoroughness with which such a pattern is internalized in the personalities of the individuals who adopt it, its centrality or marginality in their lives" (1968: 111). The anthropologist Renato Rosaldo, noting that ethnographers tend to prefer data that participants can explain in depth, nonetheless wonders, "Do people always in fact describe most thickly what matters most to them?" (1993: 2) Listening often feels that way for professional ethnographers: fundamental, but hard to put a finger on.

At the same time, listening is at odds with some long standing Western cultural traditions and epistemological discourses, as well as powerful narratives core to corporate culture and capitalism, more broadly. In particular, the sound of friction is found in the discord between perceptions of listening (arguably, misperceptions) and the value placed on productivity and rationality in the organizational settings where professional ethnographers work.

In considering broader contextual factors, scholars of listening and sound studies have outlined a longstanding bias in Western culture and philosophy that prioritizes vision over other senses. The lineage of this perceptual and epistemological prejudice, called *ocularcentrism* (Berendt 1985, Back 2007), stretches back to classical history: Plato and Aristotle gave primacy to sight, and associated it with reason. The logic of listening has long represented an *unsound* form of rationality.

These cultural tendencies persist to the present day, as ethnographers pointed out to me many of the subtle linguistic metaphors and stereotypes that generate

friction around listening. We say that "seeing is believing." Or when we discover truth, "I've seen the light." When we want to relate to an individual we might say, "I hear you," but when we come to a more profound realization we say, "I see." We trust the eyewitness, but condemn hearsay.

This cultural legacy emerges in corporate settings, too, as noted by professional ethnographers. The business world tends to valorize talkers, producers, the "outspoken" individual. Being too much of a listener can feel like waffling, the essence of ambivalence, which frequently runs contrary to models of business leadership.

Further, the pace of ethnographic research is often not in harmony with the rhythm of organizations (Cefkin 2007). And ethnographers don't necessarily want to draw more attention to this dissonance. Listening is a slow, deliberate, demanding activity—even if a pursuit with the capacity to create change and generate insights. This slow rhythm pushes against the endless urgency of agendas and timelines for organizations we work with. In theory, they invite us to do our work and spend time listening and capturing the voice of the user or consumer. But in actual fact of practice, professional ethnographers have recognized that organizations bristle at the slightest perception of inaction or inefficiency. And the uncertainty of listening—how long will it take? what will actually be uncovered? how do you do it? what is the impact?—all resist the capitalist logic of organizations, which revolves around productive power.

Ironically, outside of corporate research departments, a proliferation of books and articles in popular psychology, journalism, and the business press have begun to highlight what might be called a contemporary "crisis of listening" (e.g. Murphy 2020, Trimboli 2022). These authors argue that we have become "bad" listeners and need to (re)learn "good" listening. Much of this work is framed around a critique of the attention economy, though the factors are certainly more complex. They argue that our livelihood and our happiness, if not our souls, require us to rediscover the "lost art" of listening. An emerging group of experts is now teaching people, including those in the business world, how to be better listeners.

HOW TO DO THINGS WITH LISTENING

Doing things with listening requires we dispense the notion that listening is a passive act, limited to giving attention and gathering information. Similar to performative statements and utterances, in which words take on the power to do things (Austin 1962), listening might also be seen through the frame of performativity. Ethnographic listening, whether consciously situated or not, has the capacity to do things, which may include inspiring people, generating discovery (personally and collectively), producing culture, and aligning people (as a community or with an environment). Further productive capabilities will likely be revealed through ongoing experimentation.

In this spirit, I'd like to look at the way ethnographic researchers "do" listening, and then consider how listening might play a larger role in our work as professional ethnographers. I'll share some experiments with listening that have been conducted by myself and others in professional contexts. And I'll also outline a conceptual framework to prompt further experimentation.

Throughout these experimental prompts and conceptual framework, I want to highlight the artists, musicians, composers, and sonic activists whose work has inspired these methods and listening interventions. In particular, the extensive body of work and writings from Pauline Oliveros is foundational (Oliveros 1998, 2005, 2010, 2013). Her deep listening practice and soundmaking scores, called Sonic Meditations (1971), serve as an archetype for transforming listening into action. I also have been energized by the artwork and insights of Elana Mann, a Los Angeles-based artist exploring the power of the collective voice and the act of listening through sculpture, sound, and community engagement. Mann's soundmaking tools/sculptures palpably demonstrate the ways listening can intervene and transform social contexts. Other art inspirations include the Houston-based non-profit group Nameless Sound and their experimental soundmaking pedagogy (Dove 2016); the d/Deaf director and artist Alison O'Daniel, and her work leading to the cinematic project *The Tuba Thieves* (2023); the musical group/artist collaborative Lucky Dragons, exploring ecologies of participation and dissent through sound performances, publications, recordings, and public art; and many others. Over the last several decades, and increasingly in recent years, many artists have positioned listening as core to their practice, to powerful effect (e.g. see Ennis 2018, in conversation with Elana Mann). It's an exciting moment for professional ethnographers to consider doing the same.

These listening experiments also build on prior work by members of the EPIC community.

That includes Gregory Weinstein's (2019) prompt to explore listening "through the ears" of blind research participants in the service of more inclusive research methods and design outcomes. Melissa Cefkin (2007) has decoded the "rhythmscape" of the corporate sales pipeline through careful ethnographic listening and work shadowing. Cefkin and ken anderson co-organized the EPIC 2007 conference around the theme of "Being Heard," though focusing on how professional ethnographers can be heard in their organizational settings (Cefkin and anderson 2007). Another emergent and growing body of literature from the EPIC community, as well as many academic anthropologists and related social sciences, has explored the role of the body in knowing and the possibility of a multi-sensory ethnography (e.g. Roberts 2020, Lee and Chao 2021; academic references on embodied listening include Feld 1990, review articles such as Lock 2017).

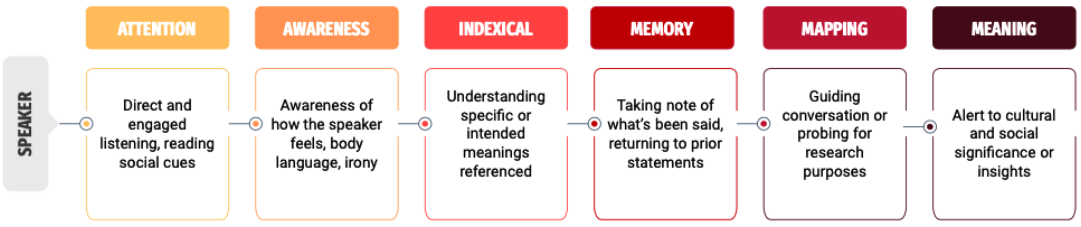
The EPIC 2022 conference in Amsterdam represented a fascinating touchpoint at the intersection of listening and professional ethnography. The artist Grant Cutler produced an immersive experience on-site called "Silence: Divergent Listening in the

Anthropocene" (Cutler 2022). David Goren presented his ongoing research on Brooklyn pirate radio stations (Goren 2022). In the lead up to the conference, I hosted one of Oliveros' "Sonic Meditation" events for an online group, which led to engaged discussions. And at the outset of the conference, Gregory Weinstein and I co-hosted a SoundWalk that led a group of EPIC members meandering through the streets of Amsterdam (more on this event below).

How Listening Gets Done

Simultaneous and multidimensional listening, particularly during interview encounters, characterizes an ideal form of ethnographic listening. In my research, professional ethnographers explained to me how they listen for multiple signals, as well as opportunities for guiding conversations and making sense of patterns. Jay Hasbrouck has similarly pointed to the uniqueness of ethnographic listening, describing what he calls "layered listening" which, "might be best described as an internal voice that continually searches for the cultural meaning behind statements people make, and then attempts to find points of interaction that can be used to explore the significance and lived experience of those meanings for participants" (2017:17).

Mapping this multidimensional portrait of listening reveals that ethnographers are not merely "good listeners." The conventional sense of a good listener—paying close attention to and having empathy for another person—is table stakes for the ethnographer. They must also consider multiple and coexisting processes of attention, sensory dynamics, cultural dynamics, social dynamics, and linguistics (indexical), not to mention methodological concerns, ethical concerns, temporal concerns, and the micropolitical dynamics of the ethnographic encounter. That includes the following dimensions of ethnographic listening which happen concurrently throughout an ethnographic interview:



- **Attention**: Ethnographers must be clearly engaged in listening; interpreting and performing appropriate social cues that signal listening to research participants.
- **Awareness**: Ethnographers must pay attention to signals from participants, many of them nonverbal, that communicate how the research participant feels, their comfort level with the conversation or observation. That might

also include silences or body language that sends a message, as well as instances where nonverbal cues might be trying to communicate that what's just been said shouldn't be taken purely at face value.

- **Indexical**: Ethnographers must listen for how specific words and categories are deployed in a research subject's explanation, in order to understand the context and intent of what's been said. Oftentimes, words or phrases may signal novel or emergent intent, which must be categorized rapidly as potentially either idiosyncratic or shared with various communities of practice.
- **Memory**: Ethnographers allow participants to guide conversation to a certain extent, but need to be ready to remember both the territory their research or interview guide intends to cover, as well as coming back to specific statements or turns of phrase that a research participant may have raised earlier, sometimes hours or days prior.
- **Mapping**: Ethnographers need to be cognizant of how an interview or observation is unfolding, in order to map which subjects have been covered and which further topics or questions still need to be covered. Much of this listening is functional in nature, in order to ensure the success of a research encounter.
- **Meaning**: Ethnographers need to be prepared to probe further on specific words, terms, or turns of phrase they hear that have or might have special cultural significance to the research participant, oftentimes meanings that participants assume an ethnographer may or should know about, and which can instantly reshape the tenor or direction of a conversation.

Ongoing exploration and conversation may further add or revise this subject model, but the essential point remains.

Further, this subject model suggests that ethnographers are not simply more empathetic listeners than the average person. Rather, we are engaged in a distinctive multi-layered listening practice that cannot be equated or reduced to empathy, rapport, being "friendly," or any other of the common tropes that seek to describe how ethnographers *see* the world from a different perspective. These qualities may play some role in motivating listening, but ethnographic listening is rather a multilayered and multidimensional process, an expert skill learned from years of experience.

Integrating Listening into Our Projects

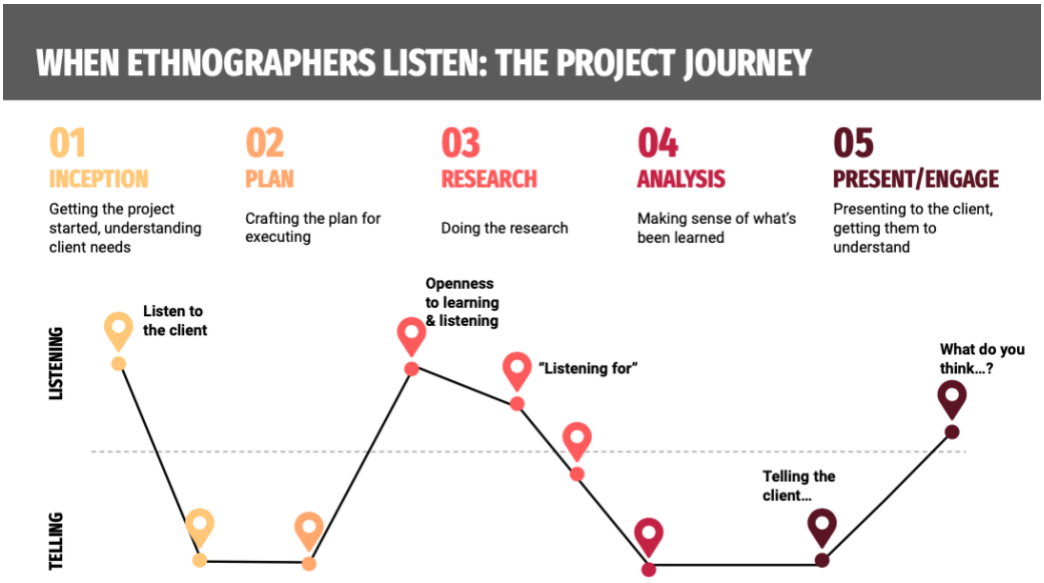
Armed with a better sense of how ethnographic listening works and how it accomplishes research work, I want to look at the existing role of listening in a traditional project cycle for professional ethnographic work in order to imagine new potential roles. Of course, the "project" is a source for continual innovation and may exist in exceedingly diverse situations in profesional ethnographic work (e.g.

Fagundes and Gomez 2016, Dautcher and Griffin 2010, Cuciurean-Zapan 2017, and many others in the EPIC community). But for the purpose of this article, I would like to draw our attention to what, in my professional experience, is standard protocol. This begins with project inception, where research is requested or initiated, and research teams engage in conversations with stakeholders or clients to refine the project purpose. In the second stage, the research team crafts a research plan, often in coordination with project stakeholders. The third stage is research, which employs methods for data collection. Analysis happens next, often blurring with or overlapping the third stage, and taking many different forms or directions. Finally, research analysis or insights are delivered back to the initial stakeholders, as researchers seek to communicate their findings and often engage in conversation to understand implications and next steps.

In most projects, listening happens mainly during the Research phase. We may also spend considerable effort listening during the inception of a project: trying to understand where the client is coming from, their concerns, and what they already know. At the conclusion of a project, especially to understand audience reception and to effectively locate opportunities for integrating research findings and recommendations within organizations, some amount of listening may be required. But for the most part, outside of these occasions, professional ethnographers spend more time telling others what to do and focusing on productive outputs than listening. Even during the research phase, listening skills often fatigue as we begin to discover patterns of assumption and feel that we can essentially predict what participants will say next. Ethnographers tend to stop listening broadly and begin "listening for" certain stories or details that can verify their hunches and hypotheses. At the beginning and end of this overall project journey, too, professional ethnographers may tend to focus more on "selling" their ideas for what a project should look like (inception) and what the organization should do with these insights (presentation). Inception stage listening is often obligatory. Presentation stage listening is often more theater than sincere. Even Research stage listening can fall into the trap of feeling more like extraction than genuine openness.

As a provocation, we might consider: What if we could integrate listening at every point along the project journey? What if we could find new uses for listening that might prompt researchers, as well as clients, stakeholders, partners, and/or research participants, to listen or listen in new ways at different points of the project journey?

Below I document two such ethnographic listening experiments, while referencing other projects and pointing to ways that others might generate new methodological directions.



Soundwalk

In 2022, Gregory Weinstein and I co-organized a Soundwalk at the EPIC conference in Amsterdam. We led a group of about 20 ethnographers on a walk from the central train station, through the historic heart of the city, past the Red Light District, and ending at a small park in a more contemporary urban office zone. Prior to departure, we provided some basic notes on the purpose of the Soundwalk and instructions: Pay attention. Don't speak. Listen deeply. These directives were largely heeded, but not enforced. At the conclusion of the walk, the group participated in a conversation about what they took note of, which included a diverse range of sonic dimensions (e.g. natural and technological sounds), as well as additional sensory inputs, such as sights and smells.

In its most basic form, the Soundwalk is a silent meditative walk in a chosen soundscape environment. The concept originated with the World Soundscape Project under the leadership of composer R. Murray Schafer in Vancouver in the 1970s (Schafer 1994 [1977]). Among other things, Schafer wanted walkers to reengage with their listening capacities, as a pathway to understanding their situatedness. Since that time, various Soundwalk practices have been employed by a wide range of musicians, composers, sound studies scholars, and sonic activists. The basic process is remarkably simple and accessible.

The Soundwalk also represents a malleable form that might be integrated into the professional ethnographic research projects. As a case in point, on the heels of the EPIC 2022 Soundwalk, one participant brought the method back to the large technology organization where they are employed and used the practice for several projects. In one instance, the Soundwalk was performed at the outset of an

international research gathering as a way to orient cross-functional team members, including non-researchers, and attune them to listening. Here, the Soundwalk set the tone for subsequent interview and observational research, getting people from diverse backgrounds on the same page and calibrating listening. This novel usage of the Soundwalk reveals its potential to shift perceptions and reconfigure sensory prioritization for individuals or a group.

But the Soundwalk's capacity to do things with listening might expand beyond preliminary and main research phases, and into novel forms of presentation and ongoing engagement. For instance, a group of Danish anthropologists has created a sound-based "energy walk" in the remote landscape of northern Denmark to convey ethnographic research insights to public audiences. Hikers were guided through windy landscapes via recordings that sensitized them to the multiplicity of landscape sounds connected to energy infrastructures found there, and invited participants to imagine potential future environments that looked and sounded different (Winthereik, Watts, and Maguire, 2019). One might imagine how these Soundwalkers could be further engaged in conversations that could potentially re-shape analysis and reception of the work. While not an ethnographic project per se, Canadian artists Janet Cardiff and George Bures Miller (2023) have evolved the Soundwalk into a holistic sensory experience that expands into time and imagination. One such work, investigating alternate and past realities, is their *Alter Banhof Video Walk*, designed for the old train station in Kassel, Germany, in which, "an alternate world opens up where reality and fiction meld in a disturbing and uncanny way that has been referred to as 'physical cinema.'"

The Soundwalk might be framed as an early-stage research and data collection method, one which is highly open-ended and potentially generative. At the outset of research, or perhaps in a pre-research stage, the Soundwalk might be employed for gathering diverse insights and "getting the lay of the land." As such, the method could be framed as an extension of a multi-sited ethnographic imaginary approach, specifically in the ways it echoes Marcus' call to "follow" the thing, the person, or the conflict (1995). The Soundwalk might usefully expand to prompt ethnographers to follow the sound, the soundscape, or some meaningful dimension of the soundscape. Jay Hasbrouck (2018) has also suggested that ethnographers consider unplanned pathways through space, perhaps letting sounds or other sensory inputs guide them through *dérive*, (drift, in French). He describes *dérive* as, "an unplanned journey through a landscape during which the surrounding architecture, people, and geography direct the traveler's path and interactions, with the ultimate goal of encountering new experiences and gaining a deeper understanding of their environment" (24). Openness to following as a source for cultural production can also be found in the conceptual projects of artists, most notably Vito Acconci and Sophie Calle. For Acconci's *Following Piece* (1969), the artist randomly selected and followed individuals on the streets of New York City, pursuing them until they entered a private building, a project that guided him throughout four boroughs.

Recording sensory and cultural data along the way—and with proper ethical research permissions, of course—could potentially yield valuable early-stage ethnographic insights.

In these examples and direction prompts, the value of the Soundwalk resides in its possibilities. But unlike many other research methods focused on the extraction of a specific type of data set, the Soundwalk is unwieldy. It's difficult to know beforehand what direction it will take. Openness to the latent chaos or noise found in the environment is what makes the Soundwalk a provocative example of ethnographic listening. It suggests that listening is a powerful tool for starting to make sense of unfamiliar cultural landscapes.

Community Listeners

"Community Listeners" is an original methodological innovation inspired by ethnographic, artistic, and group listening practices. In a test case for the concept, I worked with a UX research team at a SaaS website design tooling company, with B2B customers. Researchers were at the early stages of generative discovery research with their customers, becoming better acquainted with the diverse contexts of uses for the company's product line. For the Community Listeners event, we assembled a group of researchers for a dedicated collective listening session(s), focused mainly on the generative research interview recordings of one junior member of the team. That individual researcher was tasked with curating a selection of research video clips—their role at the event was like a "DJ" who selects music: here, coordinating data flows. In this situation, analysis was at a preliminary stage, so the research data and its potential insights were new to the group. We began the event with a discussion about ethnographic listening and did a Sonic Meditation exercise loosely based on instructions from the artist Pauline Oliveros (1971). Subsequent review of videos gave space for listening and unreserved insights, which were, at times, alternately awkward and productive. The awkwardness stemmed from the group's lack of familiarity with an unrestricted approach to analysis and a full openness to listening for all potential signals—the "purpose" and "objectives" were not immediately clear. The eventual value that emerged, on the other hand, stemmed from mapping insights collected throughout the event, which helped inspire a framework for generative research results. Additionally, after the event, the team began talking more about how they might find opportunities to listen together, as well as slowing down their process at strategic moments to create more spaces for sense making.

While only researchers were assembled in this case, group combinations could vary depending on the project at hand and its stage of analysis. In fact, this organization had already begun making plans for another Community Listeners event that might include Designers and Product Managers. Other iterations might expand beyond researchers and others who are directly part of the project, to include researchers from outside the project, organizational stakeholders, cross-functional team members, clients, customers, and/or research participants. More

fundamentally, the "community" participants would ideally be chosen because they are careful listeners. Community leaders might even consider choosing people from outside their organization—whether fellow ethnographers, or even musicians and sound artists—exactly because the Community Listeners is both a research analysis tool, as well as a training and attunement exercise for the assembled group.

Inspiration for Community Listeners emerged by drawing connections between multiple sources. First, during the course of my research, several professional ethnographers noted the benefit of re-listening to interview recordings, explaining that when they *listened again* to their own interviews, new subtleties always emerged, adding substance and nuance to ethnographic work. This instinct to *listen, again* serendipitously overlapped with a legendary origin story of the artist Pauline Oliveros' listening based practice:

> I have been training myself to listen with a very simple meditation since 1953, when my mother gave me a tape recorder for my twenty-first birthday. The tape recorder had just become commercially available and was not as ubiquitous as it is today. I immediately began to record from my apartment window whatever was happening. I noticed that the microphone was picking up sounds that I had not heard while the recording was in progress. After this realization, I gave myself the directive *"Listen to everything all the time and remind yourself when you are not listening."* I have been practicing this meditation ever since with more or less success—I still get the reminders after 46 years. My listening continues to evolve as a lifelong practice. (Oliveros 2010: 75-76)

Similarly, ethnographers should recognize that every instance of *listening, again* should serve as a reminder to continually return to listening (as our attention continually drifts) and that even brief moments in our data might be a valuable source to continually return to.

The Community Listeners event emerged in conversation with Laith Ulaby, an ethnographer, UX research manager, and ethnomusicologist by training, as we discussed the social nature of listening. Laith was especially fascinated by the communal forms of listening at Jazz Kissa Cafes, sites for collectively focused listening which originated in Japan in the early 20th century. A second source of inspiration we discussed was found in the Tarab musical world—prominent in 19th and early 20th century Aleppo—where a community of expert listeners called the *sammāʿah* famously attended musical performances to be seen and heard listening by both performers and audiences (Wenz 2016). The *sammāʿah,* which translates to "those who listen well," would even be invited to recording studios, thus attuning musicians to the right feel for their music. These concepts of social listening practices helped inspire Community Listeners, an event where "expert" listeners could be placed in conversation with colleagues and other stakeholders.

Soon after the concept took shape, I learned of the Interaction Analysis Laboratory (IAL), a forum for collectively reviewing ethnographic fieldwork videos in multidisciplinary collaborative work groups. IAL was first developed at Michigan

State in the 1970s and 1980s, and then brought to the joint venture of the XEROX Palo Alto Research Center (PARC) and the Institute for Research on Learning (IRL) in the 1990s (Jordan and Henderson 1995), an important origin site for the development of contemporary professional ethnography (see the Introduction to Cefkin 2010). IAL working sessions were lengthy and in-depth, requiring deep engagement from members of the work group. Diverse teams of researchers and others, potentially including research subjects, were invited to carefully review videos, pausing at moments to provide observations and insights, "whenever anything strikes them as significant" (49). IAL built on the communities of practice work from Lave & Wenger (1991) which understands knowledge, action, and learning as fundamentally social practices:

> Thus, expert knowledge and practice are seen not so much as located in the heads of individuals but as situated in the interactions among members of a particular community engaged with the material world. (Jordan and Henderson 1995: 41)

The social nature of learning applied to both the range of research subjects these groups tackled (i.e. studying communities of practice), as well as the social format of IAL group work.

Collaborative and co-present listening can help develop and train communities of practice. In professional settings, many novice researchers may have never been trained in the finer details of research methods or qualitative analysis. A group listening session can attune them to more advanced or expert ways of listening to research. Alternatively, researchers from different disciplines might share different perspectives and different ways of listening. The forum provides a research team's leadership with the rare opportunity to guide and train their team in implicit or unspoken ways; teaching by leading, showing, and listening—as well as helping more junior members of the team feel listened to.

As a method that employs listening in novel ways, Community Listeners may also foster greater team cohesion. The event actively attempts to de-center listening practices, repositioning the act of listening from an individual capacity into a group ritual. It creates a forum that allows for a diversity of listening perspectives, exposing researchers to alternative modes of listening, including from different cultural and/or professional contexts. As such, the event aims to facilitate intersubjective relationship-building that fosters understanding of different ways of listening.

CONCLUSION: LISTENING COMMUNITIES

> In hearing, the ears take in all the sound waves and particles and deliver them to the audio cortex where the listening takes place. We cannot turn off our ears—the ears are always taking in sound information—but we can turn off our listening. How you're listening is how you develop a culture, and how a community of people listens is what

creates their culture
—Pauline Oliveros (from a 2003 interview with Alan Baker, see Bartley 2016)

One question I asked practitioners in my interviews was: Does the EPIC community have a shared way of listening? Some said they didn't know and had no way to tell for sure. Others suggested that we don't, because we come from too many different backgrounds and perspectives. This article points to ways the community might have conversations about listening, create shared spaces for listening, and develop methods for listening. We will not all listen in the same way—and we wouldn't want to do that, even if it was possible—but what listening experts like Pauline Oliveros teach us is that we can develop shared sites and a common language for how we listen.

For far too long, ethnographers have kept listening to ourselves. That's perhaps a function of the lack of public discussion about research methods more generally—it is not as exciting to talk about how to conduct an interview, in comparison to talking about what we learned or the implications of our work. When Oliveros states that, "How you're listening is how you develop a culture, and how a community of people listens is what creates their culture," she is not solely talking about the internal psychological processes involved in listening. She's talking about the methods we employ to create space for listening, the forums we have for listening, and the shared contexts we might discover where we can listen, together.

With that in mind, I want to propose that readers take away a series of ideas for listening together. Iterate and make them your own, tailor them to the organizations and/or research projects you work with, and put these ideas to use. Below, I'll briefly explain some points to keep in mind to do so successfully.

- Highlight listening: Call more explicit attention to listening work already being done in projects, and create more opportunities and occasions for deep listening. These are also opportunities for greater self-reflection about listening practices and perspectives.
- Listen together: Frame listening as a social practice, rather than a purely individual one. Gather a group to listen together and share notes. Social listening is a pathway for fostering communities of practice and an opportunity for ongoing training and development.
- Listen to silenced communities: Prioritize listening to groups, communities, and individuals typically not heard from or who feel like their voices aren't listened to. This includes underrepresented groups. For product work, it may include non-primary users.
- Listen as a gift: Frame listening as a way to build relationships. Start from a recognition that listening can produce reciprocal relationships and prompt change in both the listener and those who are listened to.

- Listen to attune: In group projects, especially with cross-functional teams that might be tasked with developing research-based insights, use listening to get diverse team members on the same page and orient them. They don't need to listen the same way, but an entire team can all be ready to listen.
- Listen again, creating recursive loops: We know a first listen changes upon a second listen. The initial experience of listening is fleeting. Use technologies to play back recordings and listen again, revealing what's been missed, overlooked, forgotten, or undervalued in the first go around. Play back recordings to diverse audiences, and listen to the unique ways these audiences listen. For example, allow research participants to listen to what they said in prior interviews, and allow them to reflect on or even revise their thoughts.
- Listen freely: Approach listening projects as a curator to manage information flows and generate analytical opportunities, rather than the author of insights. Leave space for ongoing listening and analysis.
- Listen wildly: Listening can generate unwieldy sociality, bringing about change that empowers people to do things. What's unleashed cannot be predicted beforehand. Design accordingly, with specific goals but openness to all potential outcomes.
- Listen differently: Not everyone expresses themselves in the same way or in the same voice. Listening to difference may require different approaches to listening, or greater patience.
- Timely listening: Consider different temporalities of listening, and especially the ways that recording and playback might disrupt traditional notions of time and timely expression. Listen with participants or research colleagues to past recordings. Or use recordings from different places or people to imagine potential futures—or with completely new intention. Longitudinal studies might benefit from playing back recordings of what participants said in the past, allowing them to reflect on and even analyze their own past selves, in order to better understand their personal sense of change.

The above are suggestions, and I look forward to learning about your creative explorations of listening. All I ask in return is that you share what you learn. Listening represents a form of reciprocity, a symbolic exchange between listeners and various sound-producing sources, including people, practices, and environments. That includes fellow researchers and the EPIC community, too.

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NOTES

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Government Forms as Friction

Identifying Opportunities for Innovation at the Intersection of Staff and Public Needs

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This paper explores the friction inherent in forms as they flow between government institutions and people. Drawing on two case studies–a street vending permit form and a building permit form–we explore how forms are a nexus of different goals, needs, processes, and constraints for the delivery of government services. We show how reducing some types of friction through digitization creates other types of friction. Here friction is both destructive and generative: moments of friction crystallize conflicting needs between government constituents and institutions, and also point towards holistic opportunities to improve the delivery of government services. This paper expands the ethnographic lens to focus on both government staff and the public, while also exploring the friction ethnographers encounter as they work in complex bureaucratic settings. *Keywords: Forms, organizational ethnography, bureaucracy, materiality, service delivery*

INTRODUCTION: FORMS AREN'T BORING, WE SWEAR!

Maria sits in a small office, staring at her phone. In front of her is a form for a street vending permit, which she had to apply for to sell tamales outside a busy public transportation hub in San Francisco. The form's design is relatively simple: each page has a singular focus, and the text is at fifth-grade reading level. Moreover, Maria is fairly comfortable using her phone. After all, it is the main technology she uses to get things done, from finding directions in Google Maps to staying in touch with her son in Mexico.

Maria advances to a page asking her to input her Business Account Number, which she received after she registered her business with the city. As she reads the information on the page, she purses her lips and taps her finger on the table.

It is widely known that this form has many issues. It is why we have brought Maria in to participate in research; she filled the form out several months ago to obtain a permit, but we have asked her to fill it out again to learn what she struggled with along the way. For a start, the form specifies that answers must be in English, even though Maria's native language is Spanish. It is very long and can take over an hour to complete. But when we ask Maria what she is struggling with, her answer is more specific. She cannot remember her Business Account Number: it is a random

string of numbers, and it was one of many steps she had to complete before she filled out the original form.

Like many people who encounter technology that is not equitably designed, Maria is fearful of moving forward. She worries that if she clicks on a button, she might make a mistake or mess something up, ruining her chances of getting a permit. With encouragement, she scans the form and finds text that might help her remember her Business Account Number. It reads, "Your BAN is a 7-digit number. If you don't know it, you can find your BAN."

Maria knows the blue underlined text is a hyperlink; it is one of many digital conventions she has learned over the years. She clicks on the text, and suddenly a tab opens. A new world unfolds. Before her is a dense spreadsheet with many rows and columns, filled with small gray text. The words and data are unfamiliar and overwhelming. There is no mention of the street vending permit and no clear place for her to input her information.

Maria blinks and scoots away from her phone. Her brow furrows, and her eyes dart from her phone screen to our faces. "What is this?" she asks. "What do I do?"

Maria's struggle is a common one. It is emblematic of the challenges people face as they try to find and apply for government services—actions commonly mediated through government forms. Unbeknownst to Maria, in clicking on the hyperlink, she has stumbled upon an open data portal that lists all of the BAN numbers in the city and their associated information ("Registered Business Locations – San Francisco" n.d.). Although the street vending permit is administered by the Department of Public Works, the database is maintained by DataSF, a group within the Office of the City Administrator who are stewards of databases and data best practices throughout the City and County of San Francisco. Furthermore, the data itself is owned and managed by the Treasurer & Tax Collector, the agency with which Maria registered her business. In other words, the database Maria was directed to was never intended to be used by the general public. It is one of many disparate technological solutions and processes that have been cobbled together under the guise of one simple form.

It is easy to see forms as boring, mundane, and tedious. Historically, documents like forms have "because of their very ordinariness, [remained] analytically invisible" (Hull 2012, 253). Bruno Latour has even called bureaucratic records "the most despised of ethnographic objects" (Latour 2011, 54). But forms, as we show in this paper, are anything but ordinary. Within a form, each question represents competing needs and goals—for the people filling out forms and the institutions processing them. For example, what happens when people do not know how to fill out parts of a form? What do they do, and who do they turn to? Conversely, what happens when the institutions that process forms run into issues? How do organizational structures and technological systems facilitate (or block) the flow of data and services across government bodies?

At its most basic level, a form is a series of questions someone must fill out to access a government service or receive a government benefit. The answers to those questions are processed by government staff, and the form's information takes on a life as it flows through the institution, often from department to department. While forms share similarities with surveys, they differ in that form data is not quantified or examined scientifically; rather, form data is transactional and used to achieve an end.

As social scientists, we can improve people's experience with forms using methods like usability testing and observation. But improving the content and design of forms only scratches the surface and ignores the deeper, more complex elements that go into developing and processing questions and data. As Matthew Hull notes in his review of the anthropological literature on Documents and Bureaucracy, "Anthropologists have tended to use documents only as discursive, reading the content with their critical interpretive faculties, but they have seldom stopped to consider what their material form might say about that content or about bureaucratic practice at large" (Hoag and Hull 2017, 22). In other words, ethnographers have seldom looked beyond the words embedded in forms, limiting the scope of possible learnings to the form itself.

This paper argues that we should move beyond this narrow textual lens to see forms as material objects enmeshed in complex networks of power and social relations (Bowker and Star 2000; Appadurai 1988; Mol 2002; Strathern 1996). Here, the focus is not on what forms represent but on what they do—how they move through organizations, embody values and power, and constitute new lived realities (Gupta 2012; Cohn 1996). As Hull notes, "Documents are not simply instruments of bureaucratic organizations, but rather are constitutive of bureaucratic rules, ideologies, knowledge, practices, subjectivities, objects, outcomes, even the organizations themselves" (Hull 2012, 251). Seeing forms as material objects encourages us to focus on the active work that goes into making and performing the ideas, technologies, and relationships that make up forms and their related government services.

Because forms permeate organizations and touch on the lives of the public, they necessitate the kind of contextual, relational, and cultural lens that ethnography takes (van Eijk 2022). As ethnographers, we must examine the broader context in which forms operate, the institutions that use them, the technologies used to create and process them, the laws and policies that shape them, and the people who contribute and interpret the data. Doing so shifts the focus away from improving words and towards improving service delivery more holistically (Evans 2016; Lambert 2019; Australian Government Department of the Prime Minister and Cabinet 2020).

Overall, this paper takes the friction inherent in forms—as they flow between government institutions and people—as its starting point. Drawing on two case studies of forms in the San Francisco government—one focused on the street vending form we discussed earlier, the other focused on a building permit form—we explore how forms are a nexus of different goals, needs, processes, and constraints

for the delivery of government services. We show how reducing some types of friction through digitization creates other types of friction. Here friction is both destructive and generative: moments of friction crystallize conflicting needs between government constituents and institutions, and also point towards holistic opportunities to improve the delivery of government services.

While research about government services typically focuses on end users (those who fill out forms and receive services), this paper expands the ethnographic lens to also include government staff (those who create and process forms, and who also enable service delivery). We argue that we cannot improve service delivery by solving the problems faced by end users alone. We must also attend to the challenges experienced by and between government staff, and ultimately we must explore solutions that address problems for both groups. However, this approach is not without friction, as ethnographers themselves encounter unique challenges conducting research in hierarchical, bureaucratic institutions. Therefore, this paper broadens how we think about and design ethnographic studies in government (and other bureaucratic) contexts.

USING ETHNOGRAPHY TO UNPACK THE FRICTION IN GOVERNMENT FORMS

Writing and record-keeping have long played a central role in bureaucracies and governments in the form of calendars, memos, plans, reports, and more (Hull 2012; Britan, Cohen, and Others 1980, 23). The term *bureaucracy* itself is derived from the French word for "writing desk" and the Greek suffix for "power of" ("Bureaucracy" 2023). While early anthropologists focused on the role of documents in rural, non-Western settings (Hull 2012), other historians and sociologists turned their eye toward the role of words and numbers in Western settings. For example, Hacking shows how counting and statistics enabled governments to have power over populations by making bodies and other aspects of life visible and measurable (Hacking 1990). Similarly, Foucault's work shows how the rise of institutions and technologies for data collection promoted the exercise of power at the level of populations and individuals (Foucault 1990; Foucault and Others 1977), such that "every aspect of human life—health, sexuality, work, morality, our very conceptions of truth—became… products of one or another form of professional or administrative discourse" (Graeber 2015).

Much has changed in the world of institutions and bureaucracy since Hacking and Foucault's seminal work. The shift to digital practices in governments has heralded many changes: in the way organizations are structured, the types of expertise they embody, and the technologies they deploy. At first, this manifested as the digitization of historical documents and records, as well as the "digital replication and mimicking of frequently ineffective and even broken paper-based processes" (Scholl 2020). More recently, digitization in government has enabled the

transformation of services like electronic tax returns, digital payments, online voting, and more. However, there is still a sense that digitization has not been used to its full potential to streamline, improve, and innovate many existing services (Pahlka 2023; Scott 1998).

The ethnographic literature on governments and bureaucracy often focuses on the experiences of people who are the recipients of services, or on the experiences of anthropologists working for governments (MacClancy 2017; US General Accounting Office 2003). Studies have documented how people with lower levels of education and digital literacy struggle to adhere to the expectations and norms of bureaucracy, and how this often excludes them from receiving government services (Lefevre and Gazy 2022; Singh 2017; Hull 2012; Sharma 2006; Cody 2009). This is exacerbated by the design of government resources, which are sometimes developed without input from end users or adherence to usability best practices (Chisnell 2023).

Less ethnographic literature, however, focuses on the experiences of people who provide services and work in governments. The experiences and lifeworlds of the people who constitute bureaucracies are critical for understanding how forms are created and processed. However, the experiences of government workers have at times remained absent from the anthropological gaze, as they are deprioritized relative to the experiences and challenges of those who receive or are impacted by government services—or relegated to the realm of service design.

Despite this absence, some work in institutional and organizational anthropology does focus on the knowledge practices and power dynamics of institutions and corporations (Cefkin 2009). Here, anthropologists are invited to "study up," to examine the "culture of power" that pervades capitalized organizations instead of focusing singularly on those who are powerless (Nader 1974). For example, Knorr Cetina shows how scientific institutions have distinct power relations, social networks, technologies, and ways of communicating (Cetina 1999). Institutions, in other words, are not monolithic and homogenous.

This approach prompts us to explore the power dynamics within organizations, broadening the focus beyond the power dynamics between organizations and the people they serve. Like other social units, organizations are diverse; they reflect years of history and culture and are inhabited by people with different backgrounds and abilities. As such, some people who work in organizations occupy positions of power, "having discretionary authority, the ability to delay, or privileged knowledge about the bureaucratic process" (Hoag and Hull 2017). Others are marginalized due to their backgrounds, intersectional identities, or position in the organization (Garsten and Nyqvist 2013).

Such power dynamics are impacted by the advent of digital technologies, which require new forms of expertise and new working knowledge of technologies. For example, as governments adopt digital records, they often struggle to enact change among their staff. This can lead to conflicts between government workers from different "epistemic cultures" (Cetina 1999), who are forced to adapt their long-term

practices and values, often with little instruction or upskilling (Solanki and Tewari 2016). This creates friction within organizations as employees navigate power dynamics and conflicting goals and desires (Hoag and Hull 2017; Perna 2021). For example, Iszatt-White shows how road maintenance workers are resistant to the health and safety regulations designed to protect them, largely because the regulations are imposed in ways that feel unnecessarily strict and inflexible (Iszatt-White 2007). Similarly, Arvidson shows how NGO development workers display somewhat surprising "authoritarian manners, bossy attitudes towards clients and hierarchical thinking" because they are caught between altruistic organizational values and on-the-ground demands (Arvidson 2009).

As they face the advent of new digital technologies, government workers are challenged to adapt their processes for administering services. But such a process is not without friction. New technologies do not just replace older ones. Instead, digitization supplements and transforms existing practices, rearranging labor (Disalvo n.d.). For example, Solanki and Tewari show how high-level officers in an Indian Bureaucracy struggle to digitize work due to low digital skills. This, in turn, causes them to delegate digital work to subordinates, who themselves struggle to make old paper workflows and data formats fit with newer digital practices (Solanki and Tewari 2016). Digitization, in this case, does not simply streamline processes: it creates new problems and leads to more labor. This exemplifies "data friction," in which the movement of data between people, organizations, and machines creates costs in time, energy, and human attention (Edwards et al. 2011). This may explain why some digital processes result in the proliferation rather than the removal of paper (Sellen and Harper 2003).

Ultimately, the digitization of forms and government processes represents opportunities for innovation. However, it also poses challenges to existing organizational structures and practices. Digitization, in other words, results in positive changes for some but negative changes for others. For example, a program to digitize land records in India—hailed as a successful e-governance model—had many negative consequences, such as increased bribes, longer transaction times, and a redistribution of land towards large players (Benjamin et al. 2007). Digitization's impacts are uneven, exacerbating some inequalities and benefiting some people more than others.

CASE STUDIES: FRICTION IN ACTION

In this section, we draw on two case studies to show how the digitization of forms creates new sources of friction and crystallizes conflicting needs, goals, and practices. We show how a holistic, ethnographic approach to the study of forms can illuminate the broader challenges and opportunities inherent in service delivery. Ultimately, we explore how digital forms, which attempt to alleviate some frictions,

often create new frictions—primarily because digitization focuses too narrowly on technological innovation instead of service transformation.

The first case study focuses on a new digital form created to enact legislation around street vending permits, which was discussed briefly at the beginning of this paper. By examining frictions between city staff and the public, we show how problems with literacy and information accuracy arise from frictions around (1) language requirements and capacity and (2) misaligned mental models about street vending.

The second case study focuses on a digital form created to improve a paper process for building permitting. By examining frictions between different groups of city staff, we show how struggles to adapt to new digital interactions and processes arise from frictions around (1) the value placed on digitization and (2) doing research with a limited scope.

Street Vending Permit Form

In the Spring of 2022, the City and County of San Francisco passed legislation to regulate street vending (SF Office of the Mayor 2022). The legislation was rooted in several core goals: reducing the sale of stolen goods, regulating space so that vendors would not block the public right of way, and improving trash and cleanliness on key streets. All people selling goods in public spaces were required to get a permit.

In Fall 2022, San Francisco Digital Services (the author's team) was tasked with helping the Department of Public Works (DPW) launch a digital street vending permit form. DPW planned to "work with community-based outreach teams to inspect and conduct street vending enforcement, requiring proof of ownership of goods for sale or an authorization to sell the goods to be presented at the time of inspection" (SF Office of the Mayor 2022). The timeline was quick and initially did not involve research activities to test the form with the public.

After the permit form launched online, the Digital Services team learned from the DPW that most applications were submitted by community organizations and city staff on behalf of street vendors. We hypothesized that street vendors might lack digital skills to engage with digital forms, as we knew street vendors tended to come from marginalized groups. We then conducted semi-structured interviews with a small number of city staff, community organizations, and street vendors to better understand the challenges the form posed. The interviews with city staff and community organizations explored the challenges with administering the program and helping street vendors. In contrast, the interviews with street vendors (which were conducted in English, Spanish, and Chinese) focused on their challenges obtaining permits and filling out the permit form. The research was holistic, in that it examined the needs and constraints of the various groups involved in end-to-end service delivery.

Diagnosing the Problem

Through our research, we learned about the challenges experienced by street vendors as they struggled to fill out the form—and how the practices of government staff compounded these challenges.

Low digital and government literacy made the form intimidating and challenging to fill out. Some street vendors struggled with the form user interface due to a lack of familiarity with digital and government conventions. For example, several participants were unfamiliar with hyperlinks and visual cues for required answers. Many street vendors also struggled to comply with San Francisco's business permitting practices, as they had never applied for a permit or registered a business. They were afraid of making mistakes; if they did something wrong on the form, they worried they could be fined or that their permit would be revoked.

The form's structure made it difficult for street vendors to input information about street vending practices. The form asked questions about location and hours in ways that did not make sense to street vendors, for example, asking them to specify intersections and describe distance in feet. As a result, city staff engaged in many rounds of back and forth with street vendors who struggled to fill out the form "correctly" the first time around. They often had to meet with street vendors in person to show them how to measure distance on Google Maps. (This was not a skill that many street vendors had. As an alternative, a community organization advised street vendors to use a physical tape measure.) The form's design, therefore, placed an increased burden not only on street vendors, but also on city staff and community organizations.

Low English fluency and literacy hampered street vendors' abilities to access services without help. Many street vendors struggled to fill out the form in English, as they were recent immigrants with varying levels of English fluency. This was exacerbated by the fact that the form was available in other languages, but specified answers had to be in English. This was because a small number of English-speaking staff had been assigned to process street permits, and they did not have the capacity to translate non-English forms. As such, city staff struggled to provide support to all street vendors who needed it—shifting the support burden to community organizations. In fact, community organizations played an outsized role in helping street vendors navigate city processes and bureaucracy. Because the form required fluency in English and a certain level of digital and government literacy, street vendors turned to community organizations to fill out the form on their behalf.

Sources of Friction

Taken together, these research findings show the two distinct types of friction that emerged between government staff and street vendors through the process of digitization.

Government capacity and limitations around language. In our research, we learned that street vendors were often recent immigrants with low levels of English proficiency. We observed firsthand how the ability to fill out the form in non-English languages would have improved the user experience. However, when we spoke to city staff, we learned that none spoke languages other than English, so their choice to only have the form in English was rooted in their own inability to process non-English language answers. There was no budget to hire multilingual staff, so as a result, the team could not offer non-English services. While staff could have relied on machine translation services like Google Translate, they worried this would introduce application errors, creating a worse user experience. They also worried about possible legal ramifications if decisions were made based on machine-translated text.

Misaligned mental models around location and hours. In our research, we observed street vendors struggling to input information about location and hours of operation into the form. While the form's user interface caused some of this, many of the issues transcended usability. For example, street vendors were not a static population; they were often used to switching locations and routes and adapting to foot traffic as needed. Similarly, they were used to changing their hours. The form, however, forced them to choose one location and set of hours. They struggled to input their information, filled out inaccurate information (selecting all hours 7 days out of the week) to give themselves flexibility, or filled out the form multiple times to claim multiple locations. When we spoke to city staff, we learned that they had tried to structure the form fields in a way (they hoped) would minimize back and forth with street vendors. They had included several open text fields to allow street vendors to input information in their own words. However, we learned that this had the opposite effect: many of the open text fields filled the street vendors with fear, as they worried that inputting the wrong information would lead to their application being rejected.

The Challenges of Digital Service Transformation

After we completed our research, we met with city staff and community organizations to provide recommendations. Overall, our research revealed that simple fixes to the form would not be enough to improve the permit experience for city staff or street vendors. More significant changes to how the program was administered and the data was collected and processed were needed. Staff would need to change how they processed data around location and hours. The city would have to amend its budget to hire new staff with different language competencies, which could easily take more than a year at the City of San Francisco. Ultimately, the form was a tool for enforcing bureaucracy—and in doing so, it became the nexus of

competing mental models, constraints, and practices, none of which could be improved with a quick fix.

Digital Building Permit Form

In March of 2020, the COVID-19 pandemic forced the city of San Francisco to bring the building permit submission process online. Before the pandemic, applying for a building permit was entirely analog: plans were submitted in person and reviewed on paper. This meant that the initial shelter-in-place order brought permitting and construction in the city to a halt. After some initial confusion, construction was deemed an essential activity (particularly for affordable housing developments and emergency services, like pipes breaking); the work could continue, but with the necessary permits.

San Francisco Digital Service was brought in to work with permitting partners across the city to launch a webform and digital review process in less than six weeks. As part of this process, the team conducted ethnographic research with staff who processed building permits and consulted with reviewers from each department.

As an outcome, Digital Services improved and streamlined the paper form and transformed it into a digital form. Initially, the team had hoped that the digital form could connect with the main piece of software used to track permits—the aptly named Permit Tracking System (PTS) administered by the Department of Building Inspection. Further work revealed that the technical hurdles were too great—there was not enough time and budget to extensively overhaul a bespoke legacy software system—so the form submissions were output instead as a PDF. In addition to building a digital form, Digital Services published extensive information to guide applicants through the new process.

At first, the new digital building form seemed like a success. It solved significant pain points for permit center customers, who felt the online submission process was easier. However, it soon became clear that the new digital form was causing significant problems for staff. Suddenly, staff faced a huge backlog of applications (thousands of applications were submitted in just a few weeks), leading to serious workflow problems. This delay caused frustration for both city staff and permit applicants. After months of struggle with the digital process, the city created a COVID-safe way to accept paper applications and asked to take the digital form down.

Diagnosing the Problem

After the form launched, the team did further research to better understand the challenges staff experienced as they tried to use and process the digital form.

Staff struggled without in-person interactions, which were critical to ensuring data quality. With the paper form, significant interpersonal interactions occurred before the formal application process and helped improve the quality of the

application. Staff met with potential applicants to give them advice and guidance, much of which was undocumented. Importantly, the transition to a digital form eliminated these informal interactions to the detriment of both staff and applicants (Schrock n.d.). The information staff had provided verbally was not replicated online, and supplementary forms were not well documented. This increased the asynchronous back and forth between staff and applicants, making the overall process more burdensome and less efficient.

Staff struggled to adjust to new dynamics of interactions between staff and applicants. With the paper system, applicants carried their building plans from station to station in physical space. Applicants often sought out or avoided particular staff as a way to have their applications processed more seamlessly. The new digital process removed this "control" from applicants. They experienced a "black box" effect where interpersonal communication and updates were removed. This dramatically changed the experience, transforming a network-driven and relationship-driven process into an impersonal one.

With the paper system, applicants carried their building plans from station to station in physical space. This allowed them to know the status of the project and enabled them to hear and respond to comments from reviewers in real time. Applications through the new digital process removed this control from applicants. They experienced a "black box" effect, where they were unable to know the status of their submission or who was reviewing it. This dramatically changed the experience, transforming a network and relationship-driven process into an impersonal and uncertain one.

The digital form unintentionally changed (and broke) the existing service journey. With the paper process, the digital permitting form, colloquially called "Form ⅜," was physically passed from staff to staff, department to department, throughout the lifecycle of the permit application. It was a primary means of communication about the application and was the only place where certain types of communication were made (a stamp telling staff which fees to apply.) In the transition to the digital form, the output was a digital, unformatted PDF that did not function the same as form ⅜. Staff had to spend significant time parsing the PDF and struggled to find a place to enact communication. The problems with the output of the digital form created a waterfall effect, amplifying issues as the application traveled from department to department.

Sources of Friction

This experience points to two distinct types of friction—not between staff and applicants, but between staff and Digital Services.

The value placed on digitization (and the removal of paper). Digital Services' insistence on removing the paper form and foregrounding digital values

created significant friction for the staff who had processed the paper form. The Digital Services team had pre-existing ideas and values about what a "good digital service" was. Digital Services' believed that removing paper from the building permit would reduce the time required to manually input data, freeing up staff's time to do other work. However, this insistence on going digital meant that Digital Services broke the staff workflow. The team designed a great customer-facing form, but did not design the output in a way that was usable for staff. A genuinely transformative solution would have digitized the form while also redesigning and improving the staff workflow. Ultimately, Digital Services did not realize how eliminating the friction associated with paper led to additional friction and problems. (This is similar to the street vending example mentioned above, where open-ended responses intended to lower friction for street vendors inadvertently created new frictions when street vendors were worried about inputting the wrong unstructured data.)

Doing research with a limited scope. The team's limited focus on doing research with certain staff and customers did not accurately document the various types of friction involved in adopting a new digital process. The initial research on the paper form was focused on staff involved in submitting and reviewing applications, as this is what changes to a digital form would affect. As a result, the research did not include staff who were further downstream in the process—staff from inspections and records management—who would be the recipients of whatever changes were made to the paper form. Observing these staff would have made it clear how the new digital form created additional types of friction.

The Challenges of Digital Service Transformation

This was a seminal project for Digital Services—one that led to significant introspection and changes to the way the team worked. Overall, the experience revealed that, similar to the street vending example mentioned above, changes to the form were not enough to improve the building permit application experience. In fact, changes to the form alone created changes that *broke* the overall application process. To succeed, the project needed to make a wider variety of changes, namely to how various types of data moved between departments and systems (Radywyl 2014). A more ethnographic approach to discovery would have highlighted these broader changes; in other words, ethnography would have expanded the viewpoint and enabled the team to see a greater number of frictions.

CONCLUSION: WORKING THROUGH ETHNOGRAPHIC FRICTION

Taken together, these case studies highlight the sources of friction embedded in forms, be it friction between government constituents and staff, friction between different types of staff, or friction moving across or between different technologies and organizations. By examining friction as a generative force—as a mode of

engaging productively with challenges and conflict—these case studies highlight how reducing some types of friction creates other types of friction, be it the way location is asked and processed or the way forms take on various roles as they travel through government systems.

These case studies also highlight the challenges with improving service delivery. It is never enough to improve a form alone; true change requires re-envisioning government practices and systems, such as staff workflows, hiring practices, or re-engineering inter-departmental data flows between legacy technology systems. Determining these kinds of change requires the holistic, contextual view that ethnography is well-suited to provide.

However, as we noted early in this paper, conducting ethnographies in government contexts is not without its challenges. These case studies highlight how ethnography, while it plays a crucial role in exploring frictions in government, can also generate friction itself (Naik and Macarthur 2022). A critical question that emerges across both case studies is one of scoping. Faced with projects that, on the surface, are about forms but deeper down are about service transformation, how do we adequately scope research? How do we identify moments when improving the content of forms is not enough? What are the consequences of looking too narrowly at forms, at the expense of understanding the other and potentially greater sources of friction? As the building permit example shows, Digital Services could have benefited from viewing the service more holistically. The team was so focused on information collection that they made a great form that improved the customer experience but made the staff experience worse.

But the challenge is not just in scoping; it is also in doing ethnographic research in government contexts (Amagasa 2010). Although it has been a part of government practice for decades (Hoag and Hull 2017; MacClancy 2017), ethnography is not well-known or familiar, especially compared to the private sector. This is exacerbated when ethnographers work in digital teams, where ethnography as a discipline and subject is often unfamiliar to government employees. In our work, staff are often unfamiliar with being observed and uncomfortable with being asked to give opinions. Like many governments, the City of San Francisco is a hierarchical and power-laden bureaucracy in which staff are often unempowered to make change. They are forced to work with out-of-date, cumbersome technologies, which limits their ability to imagine better technical futures. They struggle to see how older technology imposes process constraints and to envision how new technologies can abolish and improve upon those constraints.

Beyond the challenges of working with staff in hierarchical environments, we have also experienced friction with our own positionality: as a Digital Services team that acts as a pseudo-consultancy throughout the city and does not administer services directly. When we try to use ethnography to change government services, we often find ourselves constrained in our ability to resource and scope projects. Many government programs, including street vending permits and building permits, are

highly complex processes involving touchpoints between multiple departments and technological systems. As a result, there is often a mismatch between the scope of research needed to capture important insights and our team's ability to create change. Researchers especially sit at one of the lowest rungs on the government hierarchy, caught between frustrated members of the public and city staff. In other words, our team is often put in positions where we make recommendations that no one is empowered to act upon.

How, then, can ethnographers position themselves to identify opportunities and create change when it comes to forms and government bureaucracy? For services that touch upon many different people, processes, and technologies, a long-term, relational approach can create a deeper understanding of constraints and build trust between government staff and constituents. Some guiding questions we can use to assess whether and how to take on projects are:

- In what ways will digitization result in change, and for whom?
    - What improvements can we make that benefit both government constituents and staff?
    - What benefits or drawbacks will digitization bring?
- How can we more proactively identify services with the right conditions for change?
    - What type of change is possible?
    - Are staff empowered to make more systematic change?

Government reform is never quick. Creating meaningful change requires slow, intentional work that lays the conditions for change itself. As ethnographers, we must play the long game: by investing in smaller projects that generate buy-in for larger projects, by exposing staff to different ways of working, and by identifying points of leverage and opportunity.

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NOTES

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A Personal Research Project that Turned into My Life's Work

SHIPRA KAYAN, Siriforce, Miro

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My journey to becoming a social impact founder that started with a simple research question – "Why didn't we see college educated refugees (who generally don't have the right to work in their host countries) work on remote work platforms like Upwork instead." This initial question led me down an unlikely path of discovery, experimentation and entrepreneurship that I hadn't planned on. In sharing my story, I want to inspire reflection on pros and cons of getting deeply invested in your research topic, so deeply that it becomes your life's work..

Shipra Kayan is an entrepreneur and designer dedicated to transforming the way we work together as a global community. She led the research function at Upwork, ran a consulting practice, and is now the evangelist at Miro. Based on her core belief that every human is inherently valuable and capable, Shipra's vision is to create a world where two people of any cultural or geographic origin can come together to collaborate and build.

Adding Friction to Mandatory Reporting

The Case for Survivor-Centered Research

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Mandatory reporting laws require the reporting to a designated government agency of a known or suspected case of abuse or neglect of children, elders, or other dependent adults. While these laws vary, researchers can be mandated to report suspected cases of abuse or neglect under a wide range of circumstances. This paper argues that a survivor-centered and trauma-informed research praxis calls for (1) actively challenging biased or uncritical reporting and the myth of a neutral researcher/mandated reporter, (2) working to minimize avoidable reporting, (3) moving from mandatory reporting to supporting, and (4) using harm reduction strategies to center survivors at all stages. Ultimately, a survivor-centered approach to mandatory reporting in research means valuing the consent and agency of those who will live with the life-altering consequences of researcher-made reports. *Keywords: Mandatory reporting, survivor-centered research, trauma-informed care, informed consent, ethics*

INTRODUCTION

In cases of a known or suspected case of abuse or neglect of children, elders, adults with disabilities, or other dependent adults in the United States, certain people are designated to be mandated reporters – this means that they are mandated, by law, to report the alleged cases, under threat of professional sanctions, civil liability, or criminal penalties. While the term 'mandated reporter' is most commonly associated with someone who has a responsibility to report suspected child abuse and neglect, it can also refer to people who report abuse of adults, elderly persons, dependent adults, and adults with disabilities as well.

The people mandated to report often hold certain designated professions, though that is not always the case. For child-related abuse or neglect, for which these laws are the most stringent and extensive, these designated professions typically include childcare providers, health care providers, educators, social workers, and clergy. However, in 18 states and Puerto Rico, anyone suspecting a case of child abuse or neglect is required to report (Child Welfare Information Gateway 2019a). And while in most states, people who work with elders or disabled adults are mandated reporters, in states like Delaware and New Hampshire, any person is considered a mandated reporter of elder abuse, irrespective of their profession. Similarly, 15 states have universal reporting of abuse, neglect, and exploitation of dependent adults and adults with disabilities (National Association of Mandated Reporters 2021). In these contexts, researchers that come to learn about such cases through their research work are by default mandated reporters.

Even in states with less strict mandatory reporting laws, researchers working within those jurisdictions might still be required to report if directed to do so by a governmental Internal Review Board (IRB) located in the state of research. Importantly, mandated reporters, as the term suggests, will most often be required to report a suspected case of abuse or neglect *whether or not a survivor gives consent for the report.*

The purpose of this paper is to outline the effects of mandatory reporting laws on cases of abuse and neglect, and on survivors, and point to the ethical implications of these laws for ethnographers, qualitative researchers, and others committed to trauma-informed work. This paper will then explore and draw from global perspectives on survivor-centered and trauma-informed approaches, in order to call on researchers to navigate the ethics of conducting research in a way that recognizes and protects the autonomy of research participants, and interrogates the mandatory reporting requirements that strip away their agency. This paper argues that researchers should challenge mandatory reporting as a neutral research practice, and add sites of friction to mandatory reporting protocols in order to afford survivors choice and self-determination within systems that are structurally and personally unjust and disempowering.

To do so, this paper discusses what a survivor-centered approach to mandatory reporting might look like, offering four principles to guide researchers in developing said approach in their work, along with a set of strategies they can deploy before research interactions, before potential disclosure during research interactions, and after a disclosure. These strategies model friction to mandatory reporting and shift a process that leaves little agency among survivors who participate in research activities, while remaining within the legal framework researchers operate under.

HISTORY AND IMPLICATIONS OF MANDATORY REPORTING LAWS

In the United States, mandatory reporting laws were introduced by state governments beginning in 1963 following the introduction of the clinical condition named the "Battered-Child's Syndrome" which raised the issue of child abuse by parents and caregivers (Brown III and Gallagher 2014). In 1974, the US federal government passed the federal Child Abuse Prevention and Treatment Act (CAPTA) which required states to pass mandatory reporting laws for child abuse and neglect in order to receive grants (Raz 2020a). Similarly, other forms of abuse and neglect followed suit. "Following the "discovery of child abuse and neglect in the 1960s and spousal abuse in the 1970s, elder abuse crept into the American conscience in the late 1970s and early 1980s" (Garfield 1991). As with any other laws or statutes, mandatory reporting laws enacted at the state level apply to everyone, regardless of whether or not the individuals or organizations work with those populations or operate in the social services realm.

In addition to their binding nature, mandatory reporting laws often include language that strongly encourages reporting–by extolling its virtues or warning what could happen in its absence. This includes arguing that reporting is meant to "help protect children" in the case of child abuse and neglect (Office of the Attorney General for the District of Columbia, n.d.) to asserting that a failure to intervene will "likely result in other individuals being abused and neglected," in the case of persons with disabilities (Commonwealth of Massachusetts, 2023). However, information on mandatory reporting does not touch on the potential harmful consequences of said reporting on families or survivors.

The language explaining mandatory reporting implies that failure to report potentially leaves a survivor at risk, and also makes it explicit that those who fail to report face consequences. Penalties for failure to report vary across states but can include fines, imprisonment, civil liability for any damages caused by the failure to report, with some states imposing additional penalties on employers or any person preventing or prohibiting someone from making a report (Child Welfare Information Gateway 2019b).

While failure to report carries punitive consequences, mandatory reporting laws reassure reporters that as long as they report "in good faith," they do not face any consequences for reporting. In fact, to be able to receive federal grants under CAPTA, states are required to provide immunity from civil or criminal liability for individuals making good faith reports (Child Welfare Information Gateway 2023). Ultimately, failure to report is punishable, and reporting – however unsubstantiated or speculative – carries no consequences.

POTENTIAL HARMS OF MANDATORY REPORTING

Despite their widespread application, there is no research or evidence to establish that mandatory reporting actually prevents harm (Hixenbaugh, Khimm, and Philip 2022; McTavish et al. 2017; Itzkowitz and Olsen, 2021). What the evidence points to, however, is that mandatory reporting can be detrimental to families and survivors. Studies of mandatory reporting laws continue to reach four conclusions. Mandatory reporting laws lead to (i) significant harm and trauma through child removal and family separation and (ii) increased surveillance and over-policing of poor communities and communities of color, particularly Black and Native families (Gruber 2023) and other marginalized communities. Mandatory reporting can also negatively impact survivors by (iii) deterring them from seeking help and (iv) stripping them of their agency and self-determination (Cipriano et al. 2022; Holland et al. 2021).

This is not only the case in the United States. 73.7% of lower- and middle-income countries and 62.8% of high income countries have mandatory reporting laws (McTavish et al. 2017). Similar findings at the international level point to the detrimental impacts of mandatory reporting on survivors, particularly as it may

obstruct access to healthcare and expose survivors, as well as healthcare personnel, to further harm. This has prompted organizations such as the British Red Cross and the International Committee of the Red Cross to question whether mandatory reporting regimes are compatible with international law and medical ethics (Skinner 2020).

Mandatory Reporting Leads to Child Removal and Family Separation

A mandatory reporting referral is the most common entry point for children and families into the child welfare system. However, mandatory reporting is riddled with over-policing, bias, and subjective interpretations. "Abuse" and "neglect" are vague terms that carry different definitions that vary by jurisdiction, as the federal government does not offer specific definitions of what constitutes physical or emotional abuse, or neglect (Child Welfare Information Gateway, n.d.). Only 16% of reports made by mandated reporters are substantiated, and of those, 74.9% are from neglect, a term that can include factors that are linked to poverty, such as inadequate housing and food insecurity (Child Welfare Information Gateway 2021; Hixenbaugh, Khimm, and Philip 2022). What a reporter may consider to be abuse may not actually be abuse, thus privileging reporters' perceptions and bias over people's self-determination. For example, some mandated reporters may misconstrue evidence of family poverty—a child wearing what is perceived to be inappropriate clothing, a child living in what is perceived as substandard housing, a child without home access to the internet—as child neglect. Family poverty, which is not a crime, is then misconstrued as child neglect, which is a crime.

Some of those mandated reporters, however, do not realize that their call initiates a process that can lead the child protection agency investigating the family. Many of these Child Protective Services (CPS) investigations lead to irreversible outcomes, including traumatic and intrusive questioning and searches, the termination of parental rights and severed connections with siblings, extended family, and community, as well as deeply irreparable emotional and psychological harm for children placed into foster care (Sankaran, Church, and Mitchell 2019; Trivedi 2019).

Mandatory Reporting Disproportionately Harms Marginalized Communities

Studies have found that investigations triggered from mandatory reporting disproportionately target low-income families, particularly Black and Native families (Roberts 2022b; Kim et al. 2017). Today, half of Black children, as well as half of Native American children, experience a CPS investigation before they turn 18 (Putnam-Hornstein et al. 2021). Similarly, disproportionate numbers of Black and Native American children are removed from their homes and enter foster care as a result of these investigations.

Beyond family separation, the consequences of mandatory reporting are harmful for people and communities experiencing systemic marginalization and

oppression: violence survivors, Black, Indigenous, and other people of color, queer and trans folks, disabled and mentally ill people, houseless and unstably housed people, and more (Arain 2019).

Mandatory Reporting Deters Violence Survivors from Seeking Support and Can Lead to Further Harm

Even in cases where there is a credible case of abuse and neglect, mandatory reporting does not lead to better outcomes for survivors. One study by Lippy et al. (2020) assessed the impact of mandatory reporting on interpersonal violence (IPV) on survivors, and found that 65.1% of survivors expressed that mandatory reporting led nowhere or even to worse outcomes. Additionally, mandatory reporting deterred survivors from seeking help, especially in states where everyone is a mandated reporter – even from their closest friends and family. Not surprisingly, 29% of IPV survivors did not seek help from friends or family out of fear of being reported. 74% of domestic violence survivors feared they would be reported to the police (Lippy et al. 2016). Similar fears of being reported impeded 27.5% of survivors from seeking resources or services, including potentially life-saving medical and mental health care.

Mandatory reporting also discourages mothers, particularly mothers of color, from reporting IPV by a spouse or partner, as it not only often leads to the children being removed from the home but also to a worse living situation for the mother and child (Devoe and Smith 2003), such as staying at an unsafe shelter or being separated from their support systems.

Similarly, studies examining sexual misconduct in higher education have found that mandatory reporting dissuades survivors from seeking resources, services or advice, even from those they trust (Holland et al. 2021).

Mandatory Reporting Strips People of Their Agency and Self-Determination

Even if survivors plead with reporters to not report their case, very few states will waive the legal requirement to file a report, leaving little autonomy to the survivor. Only three states–Pennsylvania, Oklahoma and New Hampshire–allow survivors of domestic violence to refuse the reporting of their case by health workers, typically with stringent caveats (Durborow et al. 2010). This leaves survivors with no say over the very reports that have significant repercussions on their lives.

MANDATORY REPORTING AND THE ETHICS OF RESEARCH

Given the prevalence of mandatory reporting laws, researchers may find themselves in contexts where they might be required to report suspected abuse or neglect disclosed by participants before, during, or after research interactions. However, given the potential harms that mandatory reporting could have on those

participants and their families and communities, this can put into question whether mandatory reporting and research ethics are at odds.

The Belmont Report, the seminal guide to research ethics and protection of research participants, outlines three basic principles: respect for persons, beneficence, and justice (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). We argue that mandatory reporting conflicts with these three principles, and also goes beyond these minimal standards to pose additional moral and ethical questions for researchers.

Mandatory Reporting Can Compromise the Autonomy of Research Participants

The Belmont Report urges researchers to operate with respect for persons, whereby "individuals are treated as autonomous agents" (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). As discussed above, mandatory reporting laws do not center survivors' choices with respect to defining or reporting the harm they experienced. In the context of research, a participant may disclose a potentially abusive experience, not expecting that their experience would be reported to the authorities, especially when confidentiality was promised. Researchers may even make a report against the explicit wishes of the survivor.

Even more specific is the informed consent process, a foundational component of research ethics. The Belmont Report underscores that the informed consent process should encompass information, comprehension, and voluntariness among participants (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). The voluntary nature of research participation can come into question when mandatory reporting requirements are not adequately agreed to and understood by research participants, or by the researchers themselves. Not every researcher or individual interacting with research data recognizes their mandatory reporting requirements, particularly as laws change by jurisdiction and data might be collected virtually across multiple states or countries. Without awareness of these laws and their careful consideration in the consent process, researchers may fail to provide research participants with the information they need to make an informed decision on whether or not to participate in the research and what to disclose. Even if information about mandatory reporting is indeed included in informed consent protocols, it may be incomprehensible to research participants for a myriad of reasons. For instance, a researcher may share that they are required to be a mandated reporter without explaining what that involves and what potential consequences it could lead to (e.g., what a CPS investigation into the family entails and that it could result in family separation). Similarly, the way a researcher conveys that information may not be comprehensible or accessible, such as when failing to provide information in

multiple formats (e.g., written and vocalized) or if the participant is experiencing information overload.

Mandatory Reporting Can Result in Harm to the Wellbeing of Research Participants

When it comes to the second principle of beneficence, the Belmont Report calls for efforts to "protect [participants] from harm [and] secure their wellbeing" (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). However, as evidenced above, mandatory reporting can result in further harm to survivors. Researchers can report a suspected case of abuse or neglect that is unsubstantiated while still leading to profound and long-term harm to the participant and the people in their lives. Researchers can also report a case of abuse or neglect that is substantiated but the outcome of which worsens the participant's situation.

Mandatory reporting has been discussed as in conflict with research ethics, particularly regarding confidentiality (Stiffman 2009). Breaking confidentiality, particularly in contexts where mandatory reports must include the full identity of the survivor, can expose them to further harm, including potential retaliation.

Mandatory Reporting Can Lead to Heightened Risks for Some Research Participants Compared to Others

As for the third principle of justice, the Belmont Report invites researchers to ensure fairness in the distribution of benefits and risks of the research across all participants. Otherwise, "an injustice occurs when some benefit to which a person is entitled is denied without good reason or when some burden is imposed unduly" (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1979). Because of the mandatory reports that could be made and the detrimental consequences those reports could lead to, it can be argued that research participants who are survivors are exposed to heightened risks than their non-survivor peers.

Additional Ethical Questions

Additional ethical questions relating to mandatory reporting arise beyond the Belmont Report, particularly as questions and concerns on its relevance, applicability, and failure to consider harms to communities are leading thinkers to believe that "the field of research ethics involving human subjects may have outgrown it" (Friesen et al. 2017, 15).

Motivations of Participant Protectionism

Mandatory reporting raises the question of whether researchers are actually protecting participants from harm. If a researcher reports a case out of a desire to 'protect' the participant, but ultimately exposes the participant —against their will— to further harm, who is the researcher actually protecting?

When researchers are driven to report out of fear of the repercussions of not reporting (and to assuage their own guilt by assuring themselves they have reported in 'good faith'), they are indeed choosing to report not to protect the participants, but to protect themselves. This question mirrors critiques of ethical review boards and other institutional bodies designed to be the arbiters of how research participants should be treated. Critics have argued that these institutional formations are less invested in ensuring the protection of research participants, as evidenced by the many communities who have endured "a long history of abuses at the hand of researchers," including those using IRB-approved protocols (Friesen et al. 2017, 17). Instead, it is suggested that IRBs are more invested in protecting and minimizing potential legal liability for the research institution to which they are attached. In other words, "from the vantage point of a research institution, [this] is a way to reduce the chances that subjects will have a reason to sue, which they are empowered to do, based on laws such as human-subjects regulations" (Stark 2011, 13-14). Even if research is not conducted within hospitals, universities, health departments, and other institutions typically tied to ethical review boards, the point remains. Researchers may be inclined to make a report to ensure they avoid punitive consequences they could face themselves, rather than strive to protect the research participants whose autonomy and wellbeing their research ethics should prioritize.

Trauma-Informed Research Considerations

Additionally, researchers who draw from trauma-informed principles to guide their research practice (Bernius and Dietkus 2022; Centers for Disease Control and Prevention 2020; Murray 2018) may be compelled to examine how mandatory reporting can present a tension with their desire to be trauma-informed.

A trauma-informed approach begins with safety, which calls on researchers to ensure research participants feel physically and psychologically safe. Another principle is that of trustworthiness and transparency, in which operations and decisions are made by researchers with the goal of building and nurturing trust with research participants. Additionally, a trauma-informed approach calls for collaboration and mutuality, which recognizes that healing happens in interactions that offer meaningful sharing of power. Another trauma-informed principle is that of empowerment, voice, and choice. This principle urges researchers to support participants in their choice and ensure they feel empowered to cultivate self-advocacy skills. When considering these four trauma-informed principles, it is worth problematizing how mandated reporters have the power to make decisions without

the consent and potentially against the wishes of participants, hindering opportunities to build safety, trust, collaboration, and empowerment in research interactions.

Furthermore, a trauma-informed approach to research centers peer support, in which researchers may provide resources to participants for additional support outside of their participation in research. A trauma-informed approach also asks researchers to consider cultural, historical, and gender issues in their work. Considering the disproportionate harm that mandatory reporting poses on marginalized populations, and the fact that mandatory reporting legal frameworks do not account for nor incentivize supporting those being reported, researchers may further examine how to shift their mandatory reporting protocols to be more trauma-informed.

Impact on Research Experience

Lastly, there is little research or discussion of the potential impact of mandatory reporting on the research experience itself. Mandatory reporting threatens the authenticity of participation in research as it can alter how participants might show up in a research interaction. In ethnographic and other qualitative research endeavors, the hope is to capture the genuine experiences and perspectives of participants. Mandatory reporting can instill fear in participants, especially survivors. Fearing the reporting that could arise from disclosure could limit their authentic participation and possibly even discourage them from participating at all.

The impact of mandatory reporting on the decision to participate in research could also have implications for the validity of the research, particularly if entire populations who either fear or endure mandatory reporting are deterred from participating in research. Under such a scenario, research findings may not represent diverse perspectives, particularly amongst marginalized populations who are disproportionately entangled in the systems to which mandatory reporting is connected.

PROBLEMATIZING AND CHALLENGING MANDATORY REPORTING

To help us challenge the mandatory reporting status quo, and ease the tension between mandatory reporting duties and commitments to research ethics, we can look at strategies and practices deployed in health, education, social work, and gender-based violence prevention and response work, that aim to maximize survivor-centered and trauma-informed practices within the constraints of applicable legal systems.

From these, we draw four main principles for a survivor-centered approach to mandatory reporting in research:

1. Challenging the seeming neutrality of mandatory reporting

2. Minimizing avoidable reporting
3. Moving from mandatory reporting to supporting
4. Using harm reduction strategies to center survivors

Challenging the Seeming Neutrality of Mandatory Reporting

In the United States, social work students are required to complete a mandated reporter training provided by their state offices of professions. However, in 2020, a group of students challenged the mandatory reporting training at the Columbia School of Social Work, and joined forces with professors and local community organizations – as part of a group named the Mandated Supporting Collective (formerly known as Social Workers Against Mandates) – to revise the training. The revised curriculum emphasized the importance of having a critical analysis of issues of power, racialization, oppression, and privilege. Harrell and Wahab (2022) expand on this with a study assessing how introductory textbooks for social workers fail to outline the harms of mandatory reporting and recommend changes to curricula, acknowledging that "mandatory reporting is not an activity devoid of structural influence and consequences" (834). Indeed, social workers operate within specific political contexts – including a culture of "being tough on crime," as well as systems of inequity, namely white supremacy, capitalism, and the criminal punishment system.

In addition to challenging its seeming neutrality, abolitionist groups and thinkers draw attention to the policing logics behind mandatory reporting, describing it as "state surveillance" (Shriver Center on Poverty Law 2020a) and a form of "community policing" (Raz 2020b), and pointing out that mandatory reporting requirements are likely to increase people's interactions with the police (Mandatory Reporting Is Not Neutral, n.d.).

Groups like Interrupting Criminalization also invite mandated reporters to reflect on their role, and how they might be complicit in or reify these systems of oppression (Interrupting Criminalization, n.d.). Others urge mandated reporters to check their assumptions and biases, and interrogate their subjective interpretations of what constitutes neglect (Meiners and Tolliver, 2016). This is particularly important given substantive evidence that mandated reporters' perceptions of risk are "correlated with the race and ethnicity of the family in question, … imbued with moral judgment as to normative parenting, and are not necessarily shaped by the likelihood of harm" (Raz 2020b, 3).

Seeing as mandatory reporting is not devoid of consequences, mandated reporters should be aware of the implications that reporting has on the individuals and families they report. The Mandated Supporting Collective illustrated such consequences in a decision tree format that clearly outlines what happens after a call is made in the case of child abuse and neglect reporting, including when a report is accepted or not accepted, when a report is deemed founded or unfounded, and what court interventions or potential child removals might occur after each case.

Additionally, the collective outlines not just the immediate legal consequences of the report, but also calls attention to their "domino effect"–other potential longer-term consequences that reports can have, including "eviction, job loss, and impact citizenship status" (Social Workers Against Mandates 2021b, 8).

Overall, in the context of research, challenging the seeming neutrality of mandatory reporting requires researchers to understand and be reflexive around how mandatory reporting operates through a system of policing and oppression and harms Black, Indigenous, and poor communities. It is also imperative that researchers cultivate knowledge of and reflexivity around their own biases and assumptions, and their ability and power to trigger consequential harm to the individuals and families they report.

Minimizing Avoidable Reporting

A wide range thinkers and practitioners that challenge the overreach of mandatory reporting offer guidance on minimizing avoidable reporting. This begins with understanding the minimum necessary reporting obligations, so as not to report anything more than required (Interrupting Criminalization, n.d.). To do so, mandated reporters can develop or use guides like that of Colorado-based service provider Elephant Circle, to know precisely what the law says and requires (Frosh 2020). When the legal requirements for mandatory reporting are vague, it may be prudent to seek legal counsel and consult with supervisors and colleagues, as was the case for the Washington State Coalition Against Domestic Violence (2014) when grappling with the lack of clarity in Washington state law on mandatory reporting of teen dating violence.

Additionally, mandated reporters can prevent unintentional disclosure by ensuring that they communicate legal constraints before data collection begins (Meiners and Tolliver 2016); strategically use gentle interruptions when it seems like a participant is on the verge of making a disclosure, by reminding them of mandated reporting obligations and allowing participants to determine whether/how to proceed (Joyce 2023); and use vague language or talk in hypothetical situations (The University of Texas at Austin, n.d.).

Overall, in the context of research, preventing avoidable reporting can help research teams to avoid over-reporting and, as much as possible, minimize unintentional disclosure from participants.

Moving from Mandatory Reporting to Supporting

Reminding us that "lack of consent lies at the heart of both sexual assault and universal mandatory reporting" (3), Holland et al. (2021) advocate for a shift towards mandatory *supporting* of sexual assault survivors, a series of proposed actions that would require the consent of survivors to report, all the while offering them resources and services, training employees on how to discuss options with survivors, and offering anonymous reporting mechanisms for survivors. Similarly, Safe &

Sound, a California-based service provider, advocates for a paradigm shift from mandated reporting to community supporting (Safe & Sound 2022). Groups like Rise, a collective of parents impacted by the child welfare system, specifically recommend connecting caregivers with legal representation if a report is made (Worthy, Serdjenian, and Vega Brown 2022).

Mandatory supporting has also garnered attention from social workers, who have developed guidelines on how to be a mandatory supporter in their jurisdiction (Social Workers Against Mandates 2021a) and created guides and resource lists with alternatives to calling CPS (Shriver Center on Poverty Law 2020b).

At the government level, a similar shift was reflected by the California state government in 2022 when Bill 2790 was proposed to eliminate mandatory reporting for health workers and instead require them to offer referrals for survivors. However, the bill failed in the Senate Appropriations Committee (California Senate Committee on Public Safety 2022).

Overall, in the context of research, moving from mandatory reporting to supporting can mean having a consistent and rigorous practice of preparing and offering research participants resources and referrals that they can access beyond their participation in research.

Using Harm Reduction Strategies to Center Survivors

When reports have to be made, a survivor-centered approach calls for reporters to use harm reduction strategies that can help reduce negative impact while abiding by the law, such as by maximizing survivor choice and transparency when reporting.

The Washington Coalition of Sexual Assault Programs formulated a "victim-centered approach" to mandatory reporting for service providers interacting with their clients, which includes explaining mandatory reporting in a developmentally appropriate way, sharing this obligation at the beginning of and during service provision, consulting a supervisor before reporting, informing the client before making a report, and processing the implications of the report with the client (Washington Coalition of Sexual Assault Programs 2015).

Likewise, graduate students at the UIC Jane Addams College of Social Work offered guidelines for centering families if one must call CPS. These include involving the family when making the call, informing the family of their rights and lack of rights, and providing advocacy throughout the reporting process (Shriver Center on Poverty Law 2020b).

Similar guidance can be found in survivor-centered approaches that aim to put the rights of each survivor at the forefront of all actions and ensure that each survivor is treated with dignity and respect. Putting the survivor at the center promotes their recovery, reduces the risk of further harm, and reinforces their agency and self-determination (Women's Refugee Commission and UNICEF n.d).

As this approach also runs up against mandatory reporting laws, USAID offers an example of how to center survivors:

> "Service providers should be prepared to discuss with survivors how the [mandatory reporting] policies may affect their ability to access certain services. Helping survivors make informed choices and understand the risks and benefits of reporting to law enforcement, even if the choices themselves are flawed, is an element of a survivor-centered approach" (Gardsbane et al. 2021, 10).

Lastly, the Mandated Supporting Collective urges mandated reporters to take steps to mitigate harm when making a report, while also recognizing that harm cannot be eliminated entirely. Such steps include involving the family when making the call and, ideally, making the call with the family; requesting that the operator repeat back what is reported, and confirming that they are repeating it accurately; and highlighting the family's strengths (Social Workers Against Mandates 2021b).

Overall, in the context of research, using harm reduction strategies calls for ensuring participants have as much agency and choice as possible with regards to what they disclose, what gets reported, when, and by whom.

WHAT A SURVIVOR-CENTERED RESEARCH PRAXIS CAN LOOK LIKE: ADDING FRICTION TO MANDATORY REPORTING

What could it look like if researchers were to challenge the seeming neutrality of mandatory reporting, minimize avoidable reporting, move from mandatory reporting to supporting, and use harm reduction strategies?

Despite calls to eliminate or modify mandatory reporting requirements and logics, there is not much guidance available for conducting research that centers survivors within mandatory reporting. While there is discussion around how mandatory reporting is in tension with consent and confidentiality of participants, tactical guidance on how to shift to a more survivor-centered and trauma-informed approach remains scant in literature. One suggestion proposes that, instead of the researcher reporting, the researcher can encourage the participant to report for themselves (Stiffman 2009). However, unless the researcher witnesses the report being made, it does not legally alleviate them from their duty to report.

To begin filling this gap, we offer the following examples of strategies the authors of this paper have used in their research practice, both before disclosure might occur as well as after a research participant has disclosed information that may be subject to mandatory reporting. These strategies align with four main principles for a survivor-centered approach to mandatory reporting in research: (1) challenging the neutrality of mandatory reporting; (2) minimizing avoidable reporting; (3) moving from mandatory reporting to supporting; and (4) using harm reduction strategies to

center survivors. A table in the appendix maps which of the following strategies aligns with each of these four principles.

Strategies Prior to Research Interactions

Before engaging participant in research interactions, research teams should:

- **Understand the minimum requirements for reporting.** Research the mandatory reporting laws and processes relevant to the specific research context. In cases where research is conducted virtually or across different jurisdictions, understand and potentially seek legal advice on what mandatory reporting duties are required of the research team based on their background, their location, and the location of the research participants. This can allow teams to understand if they are obliged to report, what the minimum possible information required is, or whether reporting is required at all, to avoid potential over-reporting. In addition, this step allows the team to account for profession-specific mandated reporting obligations when forming research teams and staffing projects.
- **Minimize potential disclosure through prudent research design.** Consider the potential for disclosure to occur given the research topic and questions at hand, and take that into account in designing the research approach and methodology. This could mean, for example, having participants respond anonymously to prompts in writing, which would not provide the research team with the information required to make a mandatory report.
- **Train researchers on the context of mandatory reporting.** The training should:
    - Include what the laws and policies are around mandatory reporting in the jurisdictions at hand.
    - Highlight if different members of the research team are subject to different mandatory reporting duties (e.g., researchers who are licensed social workers in that state might be mandated reporters, whereas researchers without this licensing might not be).
    - Specify the potential repercussions of not reporting.
    - Discuss the ways mandatory reporting operates through a system of policing and oppression and harms trauma survivors, especially those who are Black, Indigenous, and/or from under-resourced communities, and the specific potential repercussions of reporting, particularly for these communities;
    - Invite researchers to practice self-reflexivity around their assumptions and understanding of mandatory reporting. Table 1 offers possible prompts for reflection.
- **Craft accessible explanations of mandatory reporting for participants.**

    - Prepare verbal and written explanations of the research team's mandatory reporting duties, to be shared with research participants in recruiting communications, informed consent protocols, and other interactions. Such explanations should be in developmentally and linguistically appropriate language, and should aim to:
        - Outline the scope of the mandatory reporting laws in that jurisdiction.
        - Disclose when and how researchers are mandated to report.
        - Explain how mandatory reports could limit participant confidentiality.
        - Clarify potential next steps and consequences of reporting, including interactions with law enforcement, investigative processes, the right to counsel, etc.
        - Explain that the intention of sharing all this information is to offer participants greater choice when deciding whether/how to disclose.
    - Test the above-mentioned language (for example, in mock interviews) beforehand, to ensure comprehension among and accessibility to participants.
- **Prepare resources and referrals to support participants.** Ahead of time, prepare resources and referrals that are relevant to the jurisdiction and topics at hand, to share with participants should they want support. These resources should include confidential and private resources, such as family defense resources and religious organizations, in case participants are interested in talking with someone without the concern of reporting. Depending on the jurisdiction, privileged communication is protected with attorneys and with clergy or other religious practitioners.

Table 1. Prompts that researchers can use to reflect on their role as mandated reporters

Principle	Reflection Prompts
Challenging the seeming neutrality of mandatory reporting	• What do I know about the history of mandatory reporting laws and political contexts? • How are my mandatory reporting legal obligations in tension with my research ethics? • When I think of people who are capable of causing harm, who comes to mind? Why is that? • What biases or moral judgements do I have about what constitutes abuse or neglect? How might they affect my role as mandated reporter? • Do I know what happens after I make a report? Am I aware of the short- and long-term consequences of reporting for individuals and families? • How could a report make conditions worse for research participants and their families/communities?
Minimizing avoidable reporting	• Am I familiar with the laws around mandated reporting in the jurisdiction(s) of my research? • Do I know with confidence what I am required to report? • Whom could I turn to for counsel or guidance if my mandatory reporting obligations are unclear to me? • How and when do I let participants know that I am a mandated reporter? • Could my approach to asking questions and facilitating research sessions lead to unintentional disclosure from participants? How do I prevent that from happening?
Moving from mandatory reporting to supporting	• Am I aware of the options participants have at their disposal should they need or want support? • Do I have resources and referrals I can share with participants? Have I vetted those resources/referrals? Do I know about what participants might expect when using these resources/referrals (e.g., waiting lists, limitations around citizenship status, agency collaboration with law enforcement, exposure to other mandated reporters, etc.)? • Am I prepared to help participants process information about mandatory reporting and my role as a mandatory reporter? • Do I have the skills to support participants with safety planning, if needed?

Using harm reduction strategies to center survivors	• How and when do I inform participants of the reports that I would be required to make? • What protocols do I have in place for making reports? Do these protocols allow for participants to be involved in the decision-making and reporting processes? • Am I prepared to give a strengths-based account of the individuals or families in question? • Whom could I turn to for helping me process and prepare before making a report?

Strategies Prior to Potential Disclosure During Research Interactions

During research interactions, before participants have disclosed anything that is required to be reported by law, researchers should make all efforts to ensure participants are aware of their mandatory reporting obligations. Table 2 offers possible language that can help researchers:

- Minimize unintentional disclosure through upfront information. Ensure that participants are well aware of the research team's mandatory reporting duties, before and at the beginning of research sessions. Ask if anyone has questions and discuss all questions.
- Use alternative language and hypotheticals to circumvent the need for reporting. If possible and welcomed:
- Talk in hypothetical scenarios with participants who may be inclined to share experiences that might otherwise necessitate reporting.
- Offer participants alternative language during a research session if they are talking about something they are unsure would be subject to a mandatory report. For example, they could reference experiencing "issues at the household" that are leading them to having to do schoolwork at a friend's house, without needing to mention that the electricity in their home is out while their parent is unemployed and unable to pay the bill, which could potentially be construed as neglect.
- Offer to report anything participants would like reported. Offer caring support to participants who do want to report, and invite them to share after the session individually. Make the report in collaboration, or seek consent and clarification when a participant wants the researcher to make a report on their behalf.
- Remind participants of mandatory reporting obligations throughout. As needed, provide reminders of the mandatory reporting obligation during research sessions.
- Make use of gentle interruptions when anticipating an impending disclosure. If a participant appears close to disclosing something that would be subject

to a mandatory report, try to gently interrupt and warn them before disclosure occurs, reiterating your reporting duties so that the participant can decide if they would like to share more information with you.

Table 2. Example language that can be used with participants before a potential disclosure

Example Context	Example Language
In an informed consent form to be signed by an adult research participant	"Please note that if you share any personal experiences of abuse or neglect, we are required by [jurisdiction] law to report those experiences to [relevant department]. When I say "abuse" and "neglect", I mean [list examples that are congruent with the relevant jurisdiction's guidelines]. This report could lead to a follow-up investigation of your family or current placement, including follow-up communication, home visits, and more. When being investigated, you do not have the right to remain silent or the right to counsel. Please know that you do not have to share anything in this session that you would not like to be reported to the authorities."
When a researcher is introducing themselves to a minor at the beginning of a research session	"I am a mandated reporter, which means that I am required to notify law enforcement or child protective services if someone under 18 shares with me that they are being harmed. For example, if you tell me that someone is forcing you to have sex or that you are having sex with someone who is a lot older than you, I would need to make a report. If I must make a report, I am required to include your full name. This means that you might be contacted by [relevant entity], and they may decide to open an investigation… If you do want a report to be made to the authorities for them to look into this situation, I am here to support you. You can speak to me in private after the session."
During a research session when the researcher anticipates a disclosure	"Before you share anything further, I feel the need to inform you again that I am obligated by law to make a report, and this is what that means…" "This is an important topic. Are you open to discussing it in the context of a hypothetical scenario? For example, let's imagine that [particular situation] happened. Hypothetically, …"

Strategies After a Disclosure

After a disclosure has occurred, researchers should:

- **Inform the participant of the report that needs to be made and what it will entail.** Let the participant know that a report needs to be made based on what was disclosed, and explain what information will need to be shared and what may happen now that a report will be submitted. Ideally:
    - Inform the participant immediately or shortly after the disclosure, such that they are aware of what they have just shared and do not continue disclosing additional information.
    - Inform the participant individually and in private.
- **Give the participant the opportunity to determine their level of involvement in the mandatory reporting process.** This could look like:

- Inviting them to be a part of the reporting process, gathering all necessary information with them, being present in the room, and/or making the report together.
- Making a report in their absence, after reiterating what information will be included.
- Providing them with information about the mandatory reporting channels for them to make a report themselves.
- **Take the time to process with the participant and support as needed.** Support them if a safety plan is needed.
- **Offer participants resources and referrals available.** These should be location-specific, prepared and compiled ahead of time, in case they would be helpful.
- **Make the report in a way that mitigates harm as much as possible.** This could mean consulting with a trusted colleague before reporting, as well as preparing to give a strengths-based account of the individual or family's situation and circumstances–ideally discussed with the participant ahead of time. When making a report over the phone, this could also mean asking the operator to repeat back the information you share to check for accuracy.

As defined by some experts, "the essence of trauma is it takes control away from you or someone you care about" (Penrod 2022). Participants can experience nonconsensual mandatory reports as a loss of control; therefore, researchers should rely on trauma-informed guiding principles when interacting with participants after a disclosure has occurred. Table 3 offers example language for describing the reporting process to participants, with an eye towards transparency, collaboration, and choice.

Table 3. Example language that can be used with participants before a potential disclosure

Trauma-Informed Principle	Description	Example Language
Trustworthiness & Transparency	Decisions are made with transparency and the goal of building and maintaining trust.	"I have to report this to [authority] within 48 hours because it's the law. After I do, [possible outcomes] are likely to happen. What is your plan after [possible outcomes]? Do you have any questions for me?"
Collaboration & Mutuality	Healing happens in relationships and with sharing of power and decision-making.	"Would you like to be in the room when I make the call to [authority]?"

Empowerment, Voice, & Choice	People are supported in their choice and empowered in cultivating self-advocacy skills.	"You should be able to choose whether I share this private information about you with [authority], however, the law prevents me from giving you the right to do so. But I'm going to give you the most choice and control that I can."

Adapted from Joyce (2023)

CONCLUSION

The importance of centering survivor agency and reducing nonconsensual and/or unsubstantiated reports is relevant for anyone interacting with and collecting data from humans. Navigating mandatory reporting requirements is not only a moral and ethical issue, but also a legal and regulatory one. All data collection efforts should account for the possibility that participants might disclose information that is potentially subject to mandatory reporting laws.

We urge researchers to reflect on and problematize the conflict between mandatory reporting laws that apply to their work and the ethical duties that researchers aspire to uphold. By adding friction to mandatory reporting, a survivor-centered approach can be applied to transform ethnographic research practices, challenging the seeming neutrality of mandatory reporting, minimizing avoidable reporting, moving from mandatory reporting to supporting, and using harm reduction strategies to center the agency of the very people who will live with the life-altering consequences of researcher-made mandatory reports. We hope that this framework encourages researchers to discuss and practice reflexivity around their moral and ethical commitments. Lastly, as we look at groups of social workers, teachers, and other professionals who are not just adding friction to mandatory reporting in their day-to-day professions, but also organizing to propose alternative legislations, recommendations to state agencies, standards of practice, and other calls to action, we invite researchers to think about the collective, political impact that they can have in challenging mandatory reporting on a wider scale.

APPENDIX: PRINCIPLES AND STRATEGIES FOR A SURVIVOR-CENTERED APPROACH TO MANDATORY REPORTING IN RESEARCH

Principles for Survivor-Centered Approach to Mandatory Reporting in Research	Challenging the Neutrality of Mandatory Reporting	Minimizing Avoidable Reporting	Moving from Mandatory Reporting to Supporting	Using Harm Reduction Strategies
Strategies prior to research interactions				

1. Understand the minimum requirements for reporting.		X		
2. Minimize potential disclosure through prudent research design.		X		
3. Train researchers on the context of mandatory reporting.	X	X		
4. Craft accessible explanations of mandatory reporting for participants.		X	X	X
5. Prepare resources and referrals to support participants.			X	
Strategies prior to potential disclosure during research interactions				
6. Minimize unintentional disclosure through upfront information.		X		X
7. Use alternative language and hypotheticals to circumvent the need for reporting.		X		
8. Offer to report anything participants would like reported with them or for them.			X	X
9. Remind participants of mandatory reporting obligations throughout.		X		X
10. Make use of gentle interruptions when anticipating an impending disclosure.		X		
Strategies after a disclosure				
11. Inform the participant of the report that needs to be made and what it will entail.				X
12. Give the participant the opportunity to determine their level of involvement.			X	X
13. Take the time to process with the participant.			X	X
14. Offer participants resources and referrals available.			X	
15. Make the report in a way that mitigates harm as much as possible.	X			X

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NOTES

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Friction as a Core Competency

Through unique methodologies, positionality, and approaches to knowledge production, ethnographers identify and activate frictions to address challenges in technology, ethics, and unmet organizational expectations.

Discussant: Sam Ladner, *Senior Principal Researcher, Workday*

Toward an Ethnography of Friction and Ease in Complex Systems

BENJAMIN CHESLUK, The American Board of Internal Medicine
MIKE YOUNGBLOOD, The Youngblood Group

The stuff we ethnographers help to create is becoming more socially and technologically complex. Despite this, ethnographic practice in industry largely continues to rely on conceptual frameworks that favor relative simplicity. This paper describes our multi-year collaboration to develop a set of concepts and resources to support complexity- and systems-oriented thinking in design ethnography. Drawing on our own experiences as practicing anthropologists, we explore some of the ways in which three "frictions" hinder systemic thinking in user-centered design research. These are the frictions of availability, dissonant knowledge, and entrenched praxis. Against these, we argue for a broader, systems-sensitive approach to industry ethnography—one that seeks to understand both friction and ease for a wider range of human subjects and settings than are usually considered. Guided by perspectives from the social sciences and industry, as well as our own experience, we suggest turning our inquiry toward systems-situated phenomena, exploring, specifically: interconnectedness, synthesis, and emergence. We then describe our own foray into "user ecosystem thinking," a practical, experimental framework for applying a systems-sensitive approach to research and design. Keywords: systems, ecosystem thinking, users, complexity

INTRODUCTION

Several years ago, we began collaborating on some ideas and tools that we hoped could help us fill a void that we'd been feeling in our practice and projects as design researchers. We eventually gave our pursuit a name: user ecosystem thinking. This name, for us, seemed to capture a great deal of what we felt to be missing—a deliberate, structured way of thinking about the complex, often-disregarded, interlinkages between people and their engagements with products and services. These complex interconnections (which we will describe below) have usually played some partial role in our understanding of what we've been able to observe and examine in our fieldwork—but our projects, typically focused on specific types of users or other perceived value-creators, rarely afforded us the luxury to give these broader social connections significant thought.

In this paper, we trace some of our journey and collaboration toward user ecosystem thinking. We begin by outlining ways in which industry ethnography, as user-centered research, tends to frame our attention and action around specific types of human subjects and their seemingly isolated engagement with products and services.[1] In doing this, our ethnographic work often hides or elides other relevant subjects and blurs interconnected relationships within complex systems of subjects and artifacts. We use the metaphor of *friction* to lay out three interrelated forces which we have observed as constraints in our own practice. These are the *friction of*

availability, the *friction of dissonant knowledge*, and the *friction of entrenched praxis*. We then turn to systems theory and discuss how the key concepts of *interconnectedness*, *synthesis*, and *emergence* provide helpful anchor points in resisting these three frictions, rather than reproducing them. Finally, we describe our own experimental approach—user ecosystem thinking—a revised perspective on the concepts of "users" and "use." The approach is backed by a broad typology of "archetypical" user relationships, and operationalized via a card deck and structured, card-based brainstorming activities that we've found very effective in classrooms, workshops, and in our own project work.

THE PROBLEM AS WE SEE IT

Day by day, the stuff we industry ethnographers help to create is becoming exponentially more complex in its social interpolations and functions. Today's pervasive, far-reaching products and services touch ever-widening ecosystems of people and things, with social and environmental implications that are often far outside our view. One person's use of a social media platform can have cascading implications for dozens or millions of other people. Similarly, one person's experience of a plastic water bottle on a hot day in Chicago is not just shaped by the person who packed it, or shipped it, or brought it home and chilled it in the refrigerator, but also, in turn, shapes the experience of the person who sorts the bottle at a recycling facility or finds it floating near a garbage barge on the other side of the planet. Our interactions and experiences with products and services are less one-to-one between subject and object, and more many-to-many between multiple subjects and multiple objects, knowingly and unknowingly tethered together in an experiential web. With the rapid advancement of artificial intelligence and associated technologies, this trendline toward complexly intertwined social implications appears poised to turn ever-steeply upward.

Contrast this entangled, multiply contingent, "white water world" (Pendleton-Julian & Brown, 2018) with the classic, ubiquitous industry fieldwork photos of individual people interacting with a product—or perhaps seated at the kitchen table telling stories of their product experiences. These simple subject-object representations are in disjunction with some core realities: a growing number of people who encounter products, services, and other industrial artifacts experience them in ways that may be *in*direct, passive, *un*intended, *un*desired, *un*conscious, or far afield in space or time. Moreover, these experiences don't occur in isolation; they are shaped, enabled, or constrained by the encounters and experiences of other people, knowingly or unknowingly networked together in a complex ecosystem of people and artifacts.

As ethnographers in industry, our mandate is often to discover opportunities to simplify or enhance people's experiences with products and services; to snoop out friction and imagine opportunities for seamlessness and ease. This generally involves

some version of qualitative research with small numbers of "users," typically conceived as subjects who interact with products and services in relative isolation from broader local or global systems. This is a deficient model, in need of retooling. We see a growing incongruence between conventional "user"-centered approaches in industry and the complex, multi-dimensional systems of interconnected behaviors and experiences within which individual user experiences reside. In short, we argue that ethnographic praxis in industry has overwhelmingly come to conceptualize the human subjects of our research, and the contexts of their behavior and experience, in ways that are no longer appropriate in a world of increasing social and technological complexity—if, indeed, they were *ever* appropriate.

Our concern is deeply rooted in both early foundational and contemporary ethnographic theory. 20th century sociocultural anthropologists such as Franz Boas, Margaret Meade, Gregory Bateson, and Clifford Geertz laid foundations for understanding the complex interconnections between people and the various ways they engage artifacts and each other. More recent anthropological contributions suggest that we look at these engagements as complex activity systems, comprising an array of networked actors, including non-human actors, many of whom are not readily visible (see Adams, 2023; Hutchins, 1995; Latour, 2007; Mol, 2002). At odds with these systems-sensitive perspectives, the prevailing research perspective in industry, advanced and reproduced, in part, by practicing ethnographers, reinforces the tendency to view users in terms of simple subject-object relationships. That is, to frame human users of goods and services as "subjects" (in the grammatical sense) who have direct, active, and intentional experiences with the tangible and intangible "objects" that researchers and designers help to create.

We became uncomfortably aware of this disjunction through difficult moments of friction in our own professional practices as design anthropologists. These were instances where we discovered blind spots built into our industry-based research—causing us to either overlook crucial systemic contexts and relationships or have difficulty communicating about them effectively with our clients and colleagues. (More on this later.)

This is not an ivory tower lamentation about academic, long-form ethnography being forced into short, applied sprints and thus losing its soul. Nor do we mean to grouse about researchers without backgrounds in cultural anthropology embracing ethnography and applying its methods—on the contrary, we see the diversity of professional pathways into industry ethnography as a source of its success and vibrancy. While we are both cultural anthropologists by training, we also both have long-running careers doing applied research as consultants or in-house researchers with for-profit and not-for-profit organizations in a variety of sectors. We thus recognize that there are purposeful differences between academic and applied research, and that applied research is not inherently limited, nor inferior to academic work. What we *are* suggesting is that the ways we in industry research have come to typically conceptualize "users," and the relevant forms and contexts of their

experiences, may be leading us to suboptimal understandings and insights about what's really going on.

In a very real sense, we are talking about power, and the ways in which "user-centered," "human-centered," and related design methods and philosophies become a discourse. Here we mean discourse in the Foucauldian sense; that is, as an interconnected set of ideas, language, and practices that help to produce and *reproduce* what they purport to merely describe (Foucault, 1969). In other words, the way we study and represent users in our work does not merely describe users, their behavior, and experiences, but also constitutes them in our minds and confines the ways we and others are able to think of them. This discursive implication of user-centeredness, as we've seen it operate in research for industry, requires exploration not only into its real effects on research and design, but also how it is shaped by and, in turn, helps to reproduce, certain dimensions of social power. But we don't propose that taking a user-centered approach in applied research is, in itself, a bad thing. In this, we are aligned with anthropologist James Ferguson, who reminds us that the analysis of ideas must not be merely an inquiry into their rightness or wrongness, but rather to ask, "what do they do, what real social effects do they have" (1994, p.xv, italics in the original). Accordingly, the important question for us is, what are we ignoring, or helping to reproduce, when we put this approach to design ethnography into practice? Are there underlying structural assumptions or incentives that we are letting inform or distort our work? And, if so, how can we become more aware of these, or even find new ways of working?

THREE TYPES OF "FRICTION'

The problem, as we understand it, can be usefully examined through the lens of friction and its ease. Whose friction gets attention by ethnographers in industry? And for whom or what and where do ethnographers help to design ease? Further extending the metaphor, we suggest that the work of industry ethnography is constrained by its own frictions—three in particular—that shape our response to these questions and challenge our ability to reflect on them more fully. These are the friction of availability, the friction of dissonant knowledge, and the friction of entrenched praxis.

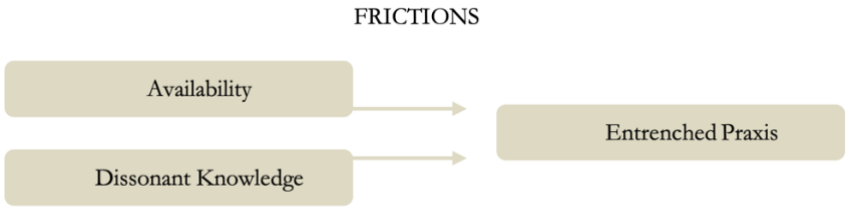

Fig. 1. The frictions work together to create a state of ethnographic praxis that lags behind reality.

The Friction of Availability

In industry ethnography there's broad agreement that a good product or service is one that understands its users. This is typically linked to a tacit understanding that users are *valuable*. As such, when we refer to users, they are typically customers or other embodiments of business value such as employees, contractors, or suppliers. These are the "users" who most readily come to mind. This simple conflation of users and perceived value to industry is fundamental to what we're calling the friction of availability. By "availability," we refer to what cognitive psychologists Amos Tveresky and Daniel Kahneman (1974; cf. Kahneman 2013) call the "availability heuristic"—the idea that humans gravitate toward what's most cognitively in ready reach, or top of mind, when thinking about something inherently more nuanced and complicated.

For ethnographers, this friction of availability can nudge us to focus on users who we and our stakeholders can most easily conceptualize as important and valuable. But it's more pervasive than that. It can also cause us to focus on the places and communities that we can most easily conceptualize as relevant to industry interests, and in the time frames that we can most readily conceptualize as appropriate for a return on the investment in our research. We assume that directing our attention further away from these loci will result in diminishing returns. But this centering on the most visible sites of value can sometimes lead us away from considering many other potentially important customers or stakeholders in the larger ecosystem of people who encounter what we help to create. While we might recognize that these other people, contexts, and temporalities are out there, for the most part we let ourselves focus on those users and encounters that we can already envision as relevant.

One way to think about the friction of availability is as a behind-the-scenes force that helps determine (mostly unconsciously to us) who and what we pay attention to when we're designing, conducting, and analyzing research. There are of course other, more visible factors as well—for example the necessity of managing research budgets and time. Although industry budgets are often large compared to academic research (and this is true of many foundations, non-profits, and public-sector agencies as well), itemized costs of doing industry ethnography add up quickly. Industry researchers (unlike academic researchers) typically hire recruiting services, pay informants, and rack up large travel costs to visit multiple field sites. Hence, the incentive is normally to keep budgets reigned in, field site selections optimized, and—critically—breadth and scope of inquiry confined to what are perceived to be the highest value returns. But while these are all understandable considerations, we also see unconscious bias, driven by friction, at work as well.

Speaking personally, we have been aware of the friction of availability in our own work on many occasions. Here's an example: some years ago, Youngblood was commuting on a train in which, several seats ahead, a stranger was conversing very loudly into his cell phone. Many minutes into the man's conversation, Youngblood

heard a fellow passenger gripe aloud for others to hear, "There should be a way to make that guy stop using his phone." To which another rider responded, "There should be a way for *all of us* to stop using his phone!" This was just an offhand exchange of witticism between fellow commuters—but Youngblood was struck. In recent years, he had been part of multiple user research projects focused specifically on cell phone users. In those projects, never had it occurred to him to think of passive bystanders as "users" of other people's mobile phones. He and his collaborators had focused diligently on the characteristics, behaviors, and expectations of *direct* cell phone users (like the loud-talking stranger) with the goal of designing a phone that could enable wonderful experiences for those users. In doing so, they had completely neglected to consider all the different people around those direct users who might also experience those phones. Thinking back, Youngblood reflected on how these projects got defined and scoped. Everyone involved had assumed that a focus on the obvious, direct users made the most sense and could have the greatest impact for design. It wasn't that Youngblood had been reluctant to speak up and advocate for other areas of inquiry—rather, he had been operating under the same set of unconscious assumptions as everyone else, feeling the pull of the friction of availability.

This highlights an important challenge: our stakeholders' assumptions about appropriate areas of focus in research often become *our* assumptions as well, because they lead us to invest our effort and imagination where we know our stakeholders will see value. We want to write proposals that win acceptance, to execute research that seems targeted and efficient, and to be able to point to clear, valuable results. Thus, we can fall into habits of proposing and practicing research that asks mostly top of mind questions to serve mostly top of mind objectives. In this way, we may even be teaching our clients and collaborators that this is what "good" user research looks like, and in doing so simply define out of the picture the possibility of broader, systems-sensitive ethnography in industry.

The Friction of Dissonant Knowledge

While the friction of availability influences what we *tune in to*, a second force, the friction of dissonant knowledge, influences what we tune *out from*. The two frictions can have similar effects on our work, though they are somewhat different. The friction of dissonant knowledge can influence our bias toward certain ideas and information even when other ideas and information are readily available. This friction is often at play when we reign in oddball interpretations or filter out data that feel too far off or too different from knowledge we already believe to be of worth and utility.

An important role of an ethnographer, or any sort of researcher, is to facilitate new understandings. A fundamental challenge to this role is that it can be very difficult to shift ideas away from, or even poke at, long-held paradigms. This is, in part, because our questions and answers themselves tend to be "paradigm-

determined" (Kuhn, 1962, p.216). The friction of dissonant knowledge reinforces this paradigm determinism in research.

One way it does this is by easing friction when we play to the paradigm, rather than against it. Setting ourselves up for success often entails, consciously or subconsciously, emphasizing what our stakeholders will be equipped to digest and able to fit, without too much discomfort, into their existing frames of understanding. In doing so, we may ignore or suppress that which is indigestible or doesn't fit. (This can be the case even when we present our work product as a "reframe" for our stakeholders.)

The friction of dissonant knowledge can also reinforce existing paradigms by *increasing* friction when we try to resist it. This is especially true with paradigms that sustain existing structures of power. This, for instance, can make it difficult for us to clearly, compellingly argue for unconventional research settings or articulate more challenging insights associated with people not normally considered users, customers, or some other human loci of perceived value. Chesluk experienced this firsthand, in one of his early projects as a practicing anthropologist, while presenting research findings to a client on the design of surgical tools. Chesluk's observations in operating rooms around the world had led him to question the client's singular focus on surgeons. He had seen that many technicians, nurses, and others were responsible for setting up and managing the devices before, during, and after each surgery; each person had to successfully use the devices in their own way to fulfill their roles and make the procedure a success. This had been easiest for Chesluk to observe in the negative—in instances where the wrong device had been brought from inventory, or the device had been set up incorrectly, or wasn't ready at the moment the surgeon needed it—but he struggled with how to include this in his presentation. When he started to describe these other users, someone from the client C-suite interrupted and asked, "What am I supposed to be learning from this?" At which point, Chesluk's boss deftly took control of the presentation and transitioned it back to findings about surgeons.

Of course, Chesluk's clients understood that other people handled their devices; the dissonance was due to their existing frame of understanding, in which surgeons make the decisions about which devices they will use and which devices hospitals will purchase. In this framing, surgeons are the relevant users because they are the customers. Thinking back on this experience, it seems clear that a better set of conceptual and linguistic tools could have been helpful. Even if the project's clients were potentially ready to learn something about people other than the surgeons, Chesluk couldn't effectively articulate his findings in a way that could overcome this friction.

Sometimes when we or our stakeholders resist dissonant ideas and information it seems to come from an unconscious response to fortify our beliefs and protect them from contradiction with a sort of "self-sealing logic" (Argyris, 2012). Other times, however, the rejection of dissonance is more overtly and deliberately in service of

social power. Like us, you've perhaps had experiences working with clients or stakeholders who clearly have taboo words and formal or informal prohibitions on certain areas of inquiry. These may be relatively benign blind spots, or they may reflect dark corners of genuine or feigned ignorance wherein lie ugly or uncomfortable aspects of the business. Often, these dark corners relate to systemic harms, such as social and environmental costs of a product or service. An example: Youngblood was once in discussions with a potential client whose flagship product is notoriously and unquestionably addictive, causing harm to many customers. At the outset of the engagement, the client project lead instructed Youngblood that "addiction" and "habit" were among the multiple words that could never be mentioned in meetings or presentations. (N.B. Youngblood did not end up contracting with this organization.)

In extreme cases like this, we can perhaps see these taboos as attempts to protect a deliberate fiction or avoid the responsibility that comes with knowing. In which case, they are clear red flags for engagements that would be ethically problematic. (What's "user-" or "human-" centered about harmful products?) But the friction of dissonant knowledge is not always so simple as heads placed in the sand. Taboos, omissions, and actual models of reality can be mutually reinforcing—shaping, over time, shared ideas of what's real and what's even knowable. If we yield to these, our work may play an active part in maintaining façades—those that are dangerous as well as those that are relatively benign—reducing the space for better understanding.

What can we do differently regarding the friction of dissonant knowledge? If we run toward rather than away from the friction of dissonant knowledge, we can imagine ways to work with it. For example, thinking about Chesluk's experience and what he might have advised his younger self to do differently, he and his colleagues could have anticipated facing issues when presenting about an unexpected group of users, and found ways to frame this knowledge with less dissonance. When we are planning our projects with coworkers and clients, we can think ahead to actively seek out and address areas of dissonance. Of course, this puts the onus on us as practitioners to become aware of our own blind spots, developing our awareness of how we may be sidelining ideas or observations that are more complex and take more time and effort to understand and convey. The experimental approach that we describe later is meant to help us and our teams do just this.

The Friction of Entrenched Praxis

In some ways, the third form of friction emerges as a gestalt from the combined effect of the first two. This is the friction of entrenched praxis. By "praxis," we mean the repeated or habitual practices through which a set of ideas is put into real-world action.

The way we put "user-centered" research into practice can keep us in a familiar groove, cutting us off from methods or perspectives that might better resist the frictions of availability and dissonant knowledge. We see this in the ways in which

our tools, our research methods, and our techniques for interpreting data and envisioning solutions are all informed by the embedded subject-object theory of user-centered design and its relative insensitivity to broader systems and models of experience. What we do in the practice of industrial ethnography reinforces this theoretical orientation and helps entrench our praxis. As noted above, this is a discourse in the sense Foucault uses the term: a formation of ideas, technologies, and practices that helps to produce what it professes merely to describe. (We don't see this as particular to the world of user research; it seems entirely possible that every profession has its own version of entrenched praxis.)

Sometimes, the entrenching force can be as simple as letting the name we give to a thing come to define what we see that thing to be. This partly explains, for example, why it's so easy to understand *surgical* tools as artifacts used by *surgeons* rather than by a whole ecosystem of important users. This phenomenon of particular types of subjects getting conceptually and rhetorically linked to particular products or services is what Kris Cohen (2005) describes as "a who getting sutured to a what" (p.22) repeatedly over time until the relationship seems self-evident, of central importance, and unworthy of interrogation.

Like us, you may have noticed ways in which the work we do, and the language of our work, has entrained our minds. Concepts such as "user" and "experience," mostly under-defined and under-theorized in our day-to-day projects, direct our focus toward particular types of users and relatively well-trodden areas of investigation. Many other terms of trade in our professional practice similarly shape how we approach and execute our work. These include classic hits such as "needs," "moments of engagement," "customer journeys," and "delight," all signifying areas of user experience that are perceived to have value for industry. These are part of the language of our explicit and implicit training as practicing ethnographers, the language of our colleagues and clients, of RFPs, proposals, research plans, and insights decks. They shape the way we approach research and present what's out there in the field. We've learned this through repeated reinforcement, and we've reproduced it ourselves in the proposals, plans, and write-ups we create. The established gravity of "user-centered" thinking and practices as we know them pulls us back to the assumed centers of importance and value. This can be seen as both an effect of social power on our work as well as a way in which our work can be part of reproducing that same social power.

In our experience, we are sometimes most aware of entrenched praxis when planned research takes unexpected and fortuitous turns into new avenues. We're thinking of situations when what we have envisioned as a linear path toward a set of results surfaces something entirely unexpected that challenges our research approach and/or our hypotheses. This might happen deep into a project plan when it's difficult to change course. We have encountered this on several occasions where the nature of the product or service we were studying seemed to self-evidently point to *who* to research and how. For example, a project of Youngblood's on insulin "self-

injection" devices took a new turn when the research team was confronted with the realization that these devices are sometimes, in infrequent but critically important medical situations, deployed by caregivers or bystanders rather than by the insulin-takers themselves. This had important implications for labeling and device design to support non-adept (non-"self-injecting") users. In another project, scoped for research with college students and instructors to support the design of a "student" portal for online learning, Youngblood and team realized halfway into their fieldwork that many students relied on a broad ecosystem of other people, including mentors, family members, employers, peer allies, and other personal supporters who all helped create a student's experience. Prior to this realization, these people were not considered for significant inclusion in field research because they not "students." Once included, the team was able to envision ways that the portal could be designed for some of these other potential users—for example, to help them send encouragement to students, proofread writing assignments, and celebrate achievements through the portal. In both of these cases, realizing the larger assortment of people that were or *could be* involved in the primary user's experience had huge implications for design.

Through research experiences such as these, as well as others mentioned above, we began to recognize ways that all three of these frictions have affected our work. Moreover, we learned *from* them, as they shed light on certain challenges to moving our ethnographic practices forward. In response, we turned to various schools of systems theory to design something of our own: a practical toolkit for ourselves and others to mitigate the effect of these frictions.

TOWARD A MORE SYSTEMS-ORIENTED ETHNOGRAPHY IN INDUSTRY

As discussed above, the relatively narrow conception of user-centricity that tends to inform our research in industrial ethnography can cause us to miss opportunities that come from a broader, more systems-sensitive understanding of human encounters with artifacts. As user experiences grow increasingly global and interconnected, we are wary of the breadth of user contexts and forms of experience that risk going un- or under-explored, leaving many types of encounters and experiences with industry ethnographically invisible—in part, because these are not seen as valuable in our work. We worry about a possible future in which this ethnographic invisibility becomes an accepted norm, rendering ethnography and design increasingly "asocial"—structurally, practically, and ethically inattentive to systemic experiences and social impacts.

In other words, we are concerned that our habitual frameworks for conceiving of, understanding, and designing for our users are creating a version of reality that does not align with what's really out there. As a corrective, we argue for a broader, systems-sensitive approach to ethnography—theory and practices that seek to

understand both friction and ease more broadly for a wider range of human subjects and settings that are often not considered.

For the two of us, our efforts to envision a more systems-oriented approach for ethnography in industry has been a long (and ongoing) journey. Along the way, we have found numerous sources of inspiration in both canonical anthropology as well as emerging subfields in anthropology, design, and elsewhere where others seem to have started defining related frictions and exploring alternative approaches to the problems these can create. In anthropology, we are inspired by the subfields of cognitive anthropology, such as Edwin Hutchins' work on "distributed" cognition (1995; cf. Hollan et al, 2000; Hazlehurst et al, 2003), as well the anthropology of science, especially actor-network-theory following the work of Bruno Latour (2007) and others. These perspectives offer ways to reconceive some of the situations mentioned above—for example, in Youngblood's story about cell phone use, actor-network-theory could have helped him frame contexts and experiences of phone usage more socially, with cell phones, their direct users, bystanders, and others all playing roles in an experiential system.

More squarely in design, we've learned much in particular from two streams of work. First, the field of service design, with its insistence on understanding not just the end user experience of a product or service but the larger system of people, organizations, and processes that are needed to make that product or service possible, effective, and beneficial (see, e.g., Stickdorn & Schneider, 2011)). We've also been influenced by the multi-disciplinary work of Batya Friedman and David Hendry on value sensitive design (2019). This work centers on a technology's positive or negative impacts on different types of stakeholders throughout social systems, measuring these impacts against commonly shared human values. Friedman and Hendry see "users" as one type of stakeholder, but also consider the implications of design for "indirect" stakeholders, including future generations. Both of these emerging design practices and perspectives could have helped reframe Chesluk's story about non-surgeon device users—presenting the experience of nurses and others as a service improvement opportunity or a key stakeholder consideration could have helped convey the importance of these other users to his clients.

Our own experimental approach and toolkit borrows from these theories and practices. One thing that is common across these literatures is a systems-oriented approach to sense-making. In each of these, we see some emphasis on three key concepts that systems theorist Donella Meadows (2008) and others have given us language to think with: *interconnectedness*, *synthesis*, and *emergence*. These lenses on "what's going on" offer a solid construct for counteracting some of the frictions in industry ethnography. They facilitate new perspectives on entrenched ideas about "users," "use," and "user experience," and they point toward new ways of thinking about the societal and environmental contexts into which industry inserts its

influence and, intentionally or unintentionally, effects friction or ease for people who come into contact with its products and services.

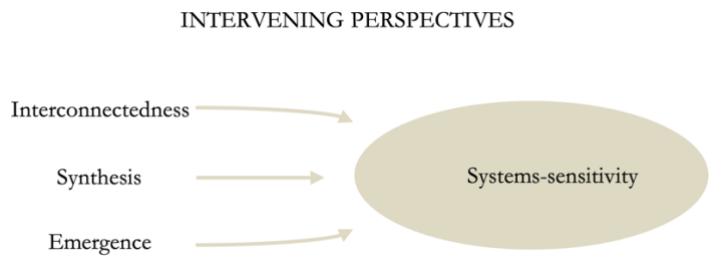

Fig. 2. The concepts of interconnectedness, synthesis, and emergence provide a foundation for systems-sensitive ethnography in industry.

The idea of *interconnectedness* points to webs of interactions and impacts beyond self-evident, top-of-mind subjects and contexts. It reminds us not to focus too narrowly on specific types of human subjects, but rather to explore ways that a range of subjects (human and nonhuman) and objects (human and nonhuman) are connected to each other through linked behaviors and experiences. Youngblood's phone user experience illustrates how we as design researchers are often told (and/or tell ourselves) to focus primarily on individual users and their experiences. An interconnectedness perspective helps illuminate more complex intersections between people and artifacts.

Synthesis points to the interdependency of all systemic elements, human and nonhuman, proximate and distant. It reminds us that these linkages are mutually influential and may vary greatly in their intentionality, visibility, or proximity in space and time. Earlier in this paper we noted how one person's use of social media or bottled water shapes, and is shaped by, the behaviors and experiences of other people even on the other side of the planet or many years later. This is synthesis.

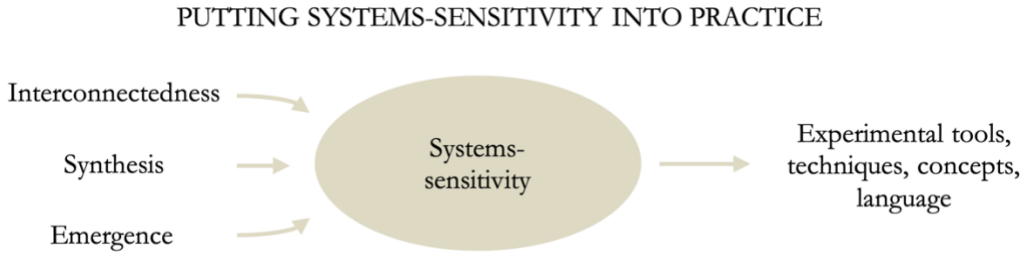

Fig. 3. Creating more systems-sensitive tools, concepts, and language for industry ethnography supports experimentation with systems-sensitive methods and approaches.

The third systems perspective, *emergence*, points to the generation and perpetuation of systemic outcomes; that is, what the parts of a system do together

that they wouldn't do alone. Emergence reminds us to explore ways in which webs of interconnected, interdependent relationships operate as a system to generate both individual and system-wide experiences, even though these experiences may appear to be the independent outcomes of one-to-one, subject-object encounters. Thinking again back to Chesluk's surgical device story, making sense of a surgical procedure through the lens of emergence could have helped demonstrate the importance of all human and non-human actors (not just the surgeon and the client's device) on the outcome of the surgery.

These concepts from systems theory, we believe, can provide a useful corrective to the discursive frame of user-centeredness—if, that is, we can put them into practice in our work.

Advancing New Perspectives and Tools: User Ecosystem Thinking

Our challenge was to find a way to operationalize these key concepts of systems thinking. We could see the value of a systems orientation in industry ethnography and how it could counter the frictions we'd experienced, but we also recognized that we needed a practical framework to put it into action. Looking retrospectively at ways that our own practice had been shaped by friction, we worked to develop a new collection of concepts, activities, and tools to help activate and sustain a stronger systems orientation in our work. Collaborating on and off over the course of a few years, we came up with an experimental approach. It entails a revised, systems-sensitive model of what it means to be a "user," what it means to "use," and a method for surfacing these in our practice. We see this work as far from a cure-all, but rather as a small and hopefully helpful contribution toward a disciplinary reorientation.

We describe this new approach, which we call "user ecosystem thinking," more fully elsewhere (Youngblood, Chesluk, and Haidary, 2020; Chesluk and Youngblood, forthcoming), but here is the foundation:

1. User ecosystem thinking begins with the understanding that anything designed can be part of a myriad of different human experiences and relationships, many of which are systematically excluded from our ethnographic view by enduring frictions that are endemic to ethnography in industry. These experiences and relationships can be direct as well as indirect, intentional as well as unintentional, proximate as well as distant.

2. Building on this insight, we can usefully redefine what it means to be a "user." In our work, we've begun defining users as anyone who has a personal experience, of any sort, with a designed artifact. Defined in this way, a person can be considered a user regardless of the nature of the particular experience that they have with the artifact, whether or not the artifact was intended for them to

experience, and whether or not they are perceived to be a locus of value for industry.

User ecosystem thinking asserts that, while user-centered approaches in design ethnography typically focus on the most visible and direct one-to-one user relationships between subjects and objects, there are multiple other forms of user relationships that are important to understand but usually overlooked. To make this assertion practical, we created a typological framework of "user archetypes" for brainstorming and analyzing the different types of user relationships that might exist around a product or service.

Our toolkit identifies fifteen archetypes. These are not humanized personas but, rather, impersonal embodiments of an archetypical relationship of "use" (as we've redefined it) that draws our attention to often-overlooked roles and experiences. In most cases, they also draw our attention to interconnectedness and synergy with other users (see table 1). One archetype, for example, is the "governing user." As the name suggests, this archetype engages artifacts in ways that significantly control or constrain the experience that some other user, somewhere, is able to have with the artifact. Another archetype is the "serial user," characterized by engagement with an artifact as just one user in a series of other users who also engage the artifact. These serialized relationships draw our attention to the dimension of time, and to the ways in which individual use and experience is shaped by, and in turn shapes, other users' engagements that precede or follow. It's important to note that governing users and serial users are not necessarily aware of the constraints and affordances they place on others (or of those that may have been placed on themselves), because the systemic effects of their own behavior, and the behavior of others, are not always readily visible to them. This applies to the rest of the archetypes as well. One archetype, for instance, is one we call the "oblique user." This user, often far removed in time or space from more direct users, engages artifacts as a downstream by-product of someone else's use. Oblique users might experience these artifacts as something highly visible (and possibly valued)—for example, in the form of discarded goods or scrap materials. But they might also experience them less visibly and less consciously—for example, as toxic pollutants or some other undesirable residue of past use.

We don't insist that any of the archetypes are always exclusively different than what might be more typically considered the "primary user" or "end user" of a specific product or service. We also don't purport that these archetypes are MECE—that is, mutually exclusive and collectively exhaustive. Rather, the archetypes often blur, overlap, or nest. In the real world, people's roles and experiences rarely conform to just one of the archetypes, even in the same moment of engagement. Rather, the idea is that, together, the fifteen archetypes help to build mental models of potentially operative systems of use and systems of experience—in

turn, prompting more robust research, insights, ideation, and understanding of implications.

Table 1. Experimental user archetypes for user ecosystem thinking.

Archetype	Significance for Ecosystemic Ethnography
Direct User	Users who engage artifacts in an active, one-to-one relationship between user and artifact. These users are the typical focus of user research.
Indirect User	Users who engage with artifacts indirectly via other users, inherently highlighting general systemic relationships.
Intermediary User	Users who enable others to engage artifacts by bridging a gap. Both the act of intermediation and the nature of the gap are key to understanding user ecosystems.
Governing User	Users who control the quality or even the actuality of others' experience with artifacts, highlighting some power and political dimensions of the user ecosystem.
Dependent User	Users whose autonomy over experiences with artifacts is compromised or controlled by the behavior and experience of others. The converse of governing users.
Parallel User	Users who engage artifacts along with others who are also engaging the same artifact in more or less the same way. In the process, their behaviors may support or conflict with each other.
Complementary User	Users who engage artifacts along with others but in different ways. In the process, their behaviors may support or conflict with each other.
Serial user	Users who engage artifacts in a sequence of users—calling attention to ways earlier users can impact later ones positively or negatively, and foregrounding the dimension of time in a user ecosystem.
Surrogate user	Users who engage artifacts as a proxy or substitute for other users, possibly helping or harming the users they stand in for.
Terminal user	Users who are the "targets" of another user's engagement with an artifact, spotlighting ways users can be relatively passive "objects" rather than active subjects in an ecosystem.
Ambient user	Users who experience artifacts through the effect on their immediate surroundings, highlighting broadly social but potentially indiscriminate forms of user experiences.
Conglomerate user	Users who engage artifacts consciously but intimately, almost as a part of themselves, highlighting the fuzzy boundary between artifacts and subjectivity.
Autonomic user	Users who engage with artifacts in a way that is automatic, unconscious, and seamless, foregrounding ways artifact-subject boundaries can be erased in practice.

Oblique user	Users who experience artifacts as the downstream by-products of others' use, emphasizing experiences that are often downplayed or ignored due to their distance in space and/or time.
Generative user	Users whose use alters the artifact itself, focusing attention on emergent aspects of engagement in a user ecosystem.

To simplify and facilitate the use of the archetypes by ethnographers and others, we represented these in different ways. One way is in text form, in language that presents their concepts in de-academicized, accessible terms and examples, not requiring the reader to be steeped in the underlying anthropological and design theory that is their foundation. We strove to give each a name that is clearly descriptive (sans excess flair or cleverness) and a motto that summarizes their relationship with artifacts and/or other users. Beyond this text, we worked with our design coauthor Nadeem Haidary to represent the user archetypes graphically and tactilely as a card deck (figure 4).[2] This card deck forms the basis of a set of structured activities for applying the typology at different steps in the research and design process, from scoping initial research and brainstorming, through analyzing the current state, to imagining radically different future possibilities for products and services, their users, and experiences. These structured activities (there are six of them) are described in detail in the toolkit as well as summarized stepwise on additional cards in the deck (figure 5).

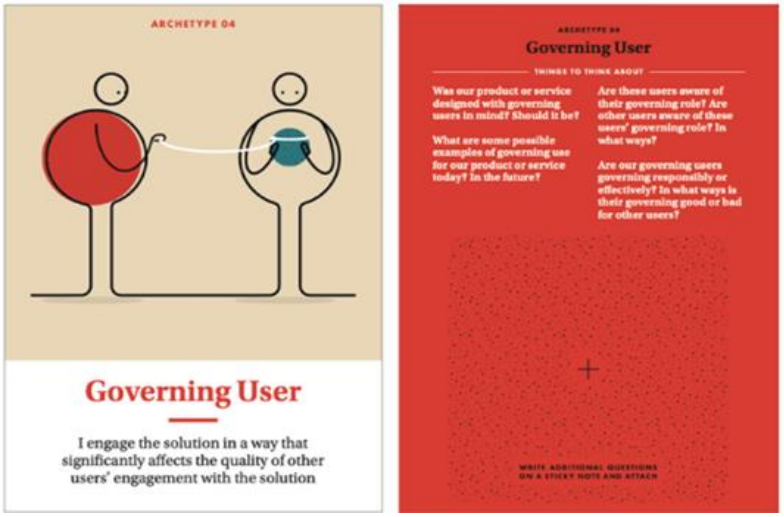

Fig. 4. Each of the User Archetype Cards has a simple visual representation and motto on the face side. The back side has starter questions for brainstorming, and dedicated space for attaching a sticky note for ideas and new questions. Image © Youngblood, Chesluk, and Haidary 2020, used with permission.

Fig. 5. The six exercise cards include step-by-step instructions for working with the archetypes to discover different aspects of a user ecosystem or inform different phases of a project. Image © Youngblood, Chesluk, and Haidary 2020, used with permission.

Since we first began prototyping user ecosystem thinking and sharing it with others, we've heard stories from designers and researchers around the world putting it into use in projects, design classes, and professional workshops, both in person and online. And, of course, we have put it to use in our own practices as well. For example, Chesluk has employed the framework and typology in his work on physician board certification, experimenting with reframing certification as not just a discrete status earned by and applied to an individual physician, but rather the product of an entire network, including physicians' mentors, support staff and even patients, as well as the national network of physicians who create the tests involved in the certification process. Youngblood has recently used the framework and user typology as a thinking tool for his work with a grief support provider for under-served children and teens who have lost a parent. The governing user archetype, for example, prompted questions for research about people in the grief service ecosystem who may knowingly or unknowingly impede or negatively influence a youth's access or experience with support services. While barriers and negative influences would likely have come up in the research without this archetype as a tool, regarding the human actors involved as "users" made it easier to envision designing *for* them rather than against them as part of the solution.

Our goal for user ecosystem thinking is that it should work as a practical approach for pushing back against the pernicious effects of the frictions we've experienced in our work. Against the friction of availability, the typology of user archetypes and structured activities helps individual researchers and teams tune in to more users and contexts by making them more accessible and top of mind. This is

made possible by the typology of archetypes and also by the redefinition of "use" as *any* personal experience with an artifact. Against the friction of dissonant knowledge, the approach gets teams actively engaged in making the case for learning about user groups that have hitherto been un- or underexplored, or even actively excluded. This is enabled, in part, by the archetypes' agnosticism toward industry's intended uses for a product or service, eliminating this key filter on who and what gets attention. And against the friction of entrenched praxis, the structured activities using the card deck help unlock teams out of habitual points of view, approaches to research, and analysis.

In this way, we believe the user ecosystem thinking approach helps further the epistemological, creative, and ethical potentials of ethnography and design.

Fig. 6. Archetype cards in use during a brainstorming activity. Photos courtesy Gabriel de Sousa via LinkedIn, used with permission.

Among the six user ecosystem exercises that we've created and found useful, we can highlight one in particular that can inform the planning and scoping of design research. This exercise, which we call "Current-State Ecosystem," facilitates a process for researchers working on a particular product or service to systematically examine each of the 15 user archetypes and attempt to identify at least one example of a user of each archetype for that product or service in the current ecosystem of users.

One value of this exercise is that it has the effect of broadening everyone's perspective on the types of user relationships and possible experiences that already exist. Another value is that it reveals gray areas where our understanding of people's connections to and experiences with products and services may fall short.

In workshops and project applications, we have consistently seen teams discover new ways of thinking about solutions they may have been working on for years. When it comes to research planning, the Current-State Ecosystem exercise has the additional benefit of explicitly cuing participants to being ready to perceive user types or relationships "in the wild" that would have otherwise been susceptible to being overlooked (as in Youngblood's cell phone research) or edited out (as in Chesluk's

medical device study). In retrospect, we wish our younger professional selves could have had access to similar tools and ideas when planning those and other past projects. They could have helped us avoid the frictional pull of the default assumptions about users that wound up structuring what we could or could not learn from our research efforts. Imagine, for example, if the project team in Chesluk's medical device study had gone through the Current-State Ecosystem exercise before deciding where and how to do fieldwork; their research may have centered users in storage rooms, as well as various staging and cleaning zones in the operating room, in addition to surgeons, and the team could have come to an agreement regarding how to gather, present, and eventually use any information about these other types of users.

CONCLUSION

Where could we go from here?

We believe that a systems orientation can advance the practice of ethnography in industry in fundamental ways. A systems-oriented ethnography can expand how we define our research questions and problems-to-be-solved, especially when supported with tools and activities that make systems thinking broadly accessible and easy to apply. This, in turn, can make us more thoughtful about the design of our research—giving us fresh perspective on how we identify relevant research sites, settings, and subjects to engage, and pushing us toward new areas of inquiry that are often overlooked. Systems-oriented research can also advance how we interpret data. It can push us to develop frameworks for sense-making that properly situate our research in complex systemic context, as well as frameworks for creative visioning of systems-sensitive solutions and communicating their value.

Our endeavor into user ecosystem thinking is just one possible approach to this. We're eager to learn from fellow practitioners working on other approaches, and look forward to more ideas, tools, and methods that could help steer industry ethnography toward more systems-informed ways of doing, and thinking about, our work.

ABOUT THE AUTHORS

Benjamin Chesluk has conducted research to improve the design of health care since 2005, currently at the American Board of Internal Medicine. Ben earned his PhD in cultural anthropology at the University of California–Santa Cruz. He is coauthor of *Rethinking Users: The Design Guide to User Ecosystem Thinking.*

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NOTES

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1. In this paper we use the terms "industry ethnography," "design ethnography," and "design research" to denote applied ethnographic research that is understood to be "user-centered," or "human-centered," in the sense that it seeks to understand specific human behavior and experiences with intent to inform the design of products, services, built environments, policies, and other purposeful artifacts.

2. In this project, we approached visual and tactile design as a language—a nonverbal way to embody and communicate theory and practice, on par with the written word. Both the written and visual/tactile dimensions of the book and toolkit benefitted tremendously from close collaboration throughout the project.

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The Ethnographer in the Machine

Everyday Experiences with AI-enabled Data Analysis

SUZANNE WALSH, *Remesh*
JAROSLAVA PALLAS-BRINK, *Wayne State University*

The growing use of artificial intelligence (AI)-enabled research tools in qualitative research has generated new and novel ways for researchers to interact with AI in data analysis, such as through the application of natural language processing (NLP) and machine learning (ML) algorithms on qualitative datasets. With the advancement of AI technologies, and its sensationalization within broader culture, sociotechnical entanglements have become increasingly complex, asking ever more of ethnographers, pushing their understandings of what constitutes the analytic process and the insights derived. It is critical for ethnographers to recognize the relationship inherent in interactions with AI-enabled research tools and develop a flexible approach to conceptualizing the researcher's role within these relationships given the fast-paced changes AI will likely bring to how ethnographers approach analyzing data. Scant interrogation has been placed specifically on AI-enabled qualitative data analysis and the relationship created between researcher and algorithm. This researcher-AI relationship is a relatively unknown territory and is deserving of greater explication. This paper proposes a model of researcher-AI interaction and argues that ethnographers can smartly leverage AI in data analysis if they deepen their understanding of AI tools.

BACKGROUND

Asking each other questions to validate our own thoughts and experiences, to hear similar stories, or to gasp at tales that conflict with our understanding of the world are inherently human activities. Social science disciplines exist because of the curiosities we have about each other and the human need to understand how we are similar or different. In part because of this desire for inquiry, an experience that most of us are accustomed to in today's world is taking a survey. We encounter surveys most often through email links – near daily invitations to provide feedback about the companies we work for or shop from, the colleges we attend, or restaurants and other services we may interact with often. A survey can be an easy task, albeit slightly boring, most frequently done in the privacy of one's own thoughts and with no interaction between other participants or a moderator. Now, imagine a type of survey that is more conversational where you find yourself in a virtual 'room' at the same time as up to 1,000 participants, interacting with their responses and stating your level of agreement or disagreement to their answers, while a moderator guides the conversation with planned questions and spur-of-the-moment probes. Combining both qualitative and quantitative question types, many hybrid AI-enabled research tools like the type described have proliferated in recent years, and have become more commonly used in qualitative research. One such tool is Remesh, a research platform that leverages AI algorithms to help understand research

participants thoughts, feelings, and perceptions. An algorithm, for the purposes of this paper, is best understood as akin to a recipe – the Remesh platform uses multiple algorithms (or recipes) to analyze data.

The Remesh platform lends a new experience to participant and researcher alike, opening a traditional focus group to scale (up to 1,000 participants) and bringing the nuance of qualitative data to a traditional survey. Although Remesh is a fully text-based platform, participating in a Remesh 'conversation' is unlike a survey in that participants interact with each other's responses and are able to view some question results in real time. Facilitating the process – and what makes this artificial intelligence (AI)-enabled tool unique – are preference-inference machine learning (ML) and natural language processing (NLP) algorithms working in concert to analyze participant response data in real time. During these conversations, participants are not only interacting with other participants, but also the moderator and fellow researchers, conversation observers, the platform interface, the preference-inference ML and NLP algorithms and the algorithms' engineering makers and maintainers. In a Remesh conversation all who contribute – whether participant, researcher, observer, or engineer – become a contained community, linked across time/space, connected by platform interface and algorithm, each an actor in a network that invites curiosity and debate.

This collaboration is awash in the mundane activities of any research endeavor (discussion guide creation, sample recruitment, client management, etc.) with the added layers of preference-inference ML and NLP algorithms, and the excitement of live data collection with co-occurring analysis. Despite the recent sensationalism the field of AI has attracted (especially generative and facial recognition capabilities), Remesh's preference-inference ML algorithm's main purpose is to assign agreement scores to each participant response. A typical output might look like this:

> I really like breakfast foods, but not the images of foods I see here. 68%

No chance of AI hallucinations or biased facial recognition here – the preference-inference algorithm scores each response based on actual participant voting behavior (described in detail later). The lack of sensationalism, however, belies the friction between the work of an ethnographer in producing analytic results and the work of an algorithm in producing analytic results. Is one or the other's work more valid? Is faster or slower work more important, better, or more accurate? As ethnographers continue to adopt AI-enabled tools to answer questions about culture and people, what responsibilities do ethnographers have in acknowledging the work of algorithms, and do algorithms' engineering makers and maintainers have a responsibility to acknowledge the work of ethnographers?

This paper explores the ethnographer-AI relationship in data analysis and proposes a networked understanding of this relationship as a path to unlocking answers about analytic work, validity and responsibility.

LITERATURE REVIEW

The popularity of AI software currently available in the US market has increased in tandem with the rise of technological advancements in general and continues to encompass a growing number of aspects in cultural, political, and economical life of modern society (Mohamed, et al, 2020). However, the variety of what is considered an AI tool is quite vast. For the purposes of this paper, we will use the definition of AI outlined by the Routledge Social Science Book of AI (Elliott, 2022). Broadly speaking, AI can refer to any computational system which can react to, respond to, and learn from its environment. Since the publication of Donna Haraway's "Cyborg Manifesto" in 1984, anthropology scholars have taken several approaches to study and observe the relationships that humans form with technologies. In her TED talk "We are all Cyborgs Now," Amber Case (2011) grapples with a traditional definition of cyborg, which is "an organism to which exogenous components have been added for the purpose of adapting to new environments." Case discusses an important aspect that can be helpful for thinking about AI-enabled research and the relationships that are formed in that context. Technology, including computer technology, is first and foremost a tool. Humans have used tools for much of our history to extend the manifestation of the physical self. Tools have helped humans become faster, smarter, and allowed engagement with our environments in new ways. Kathleen Gibson (1991), among many other scholars, writes how tool use has influenced human evolution, and of the connections between tool making and tool use and various forms of cognition, language, and social organization. Tim Ingold (1991) discusses the use of tools and the connection to the way humans socialize and evolution of intelligence. He emphasized that a form of knowledge, or the technique for tool use is different from technology itself. "The former is tacit, agent, and as a repository of experience – has been drawn from the center to the periphery of the labor process. In other words, it has been a movement from the personal to the impersonal," (Ingold, 1988). Following Ingold, the tool, or the AI algorithm in the context of this paper, and the skill of the researcher who is using the tool are independent of each other. We propose to think about this relationship as a network, where the AI is a tool or a collaborator, a partner even, rather than a part of the researcher's physical being.

Actor-Network Theory is a logical tool for engaging with and examining the relationships created by using AI technologies (Latour, 2007) because it considers all entities of the network as actors, and examines a multitude of relations, power dynamics and transformations within these networks. Technology is moving at an incredible speed, and changes to the relationship between AI and researchers are

inevitable but can be difficult to pinpoint. Additionally, Actor-Network Theory allows for the examination of the agency of each actor in the network, including the AI algorithm(s). In a Remesh conversation there are many interactions occurring, and the relationships are multifaceted. In a temporally defined community, the researcher is interacting with the participants, the observers, the AI, the maker engineers and maintainers, yielding a robust network that has varied power dynamics.

A Remesh conversation creates a temporally contained socio-technical ecosystem. The anthropological concept of a socio-technical system was described by Bryan Pfaffenberger (1992) in his work Social Anthropology of Technology. Pfaffenberger connects the study of technology and the study of material culture and explores the history of technology in human culture through a socio-technical lens, stemming from the work of Thomas Hughes on the rise of modern electrical power systems. "According to Hughes, those who seek to develop new technologies must concern themselves not only with techniques and artifacts; they must also engineer the social, economic, legal, scientific, and political context of the technology," (Pfaffenberger, 1992). In this framework, a successful technological intervention is only possible through an interaction of all actors in the socio-technical system. Thinking of a Remesh conversation as an example of this socio-technical system allows for a closer look at that the interaction between the actors, and the relationships that this system can build.

Research into ML and AI uncovers several complex ethical, cultural, and legal issues. Advances in artificial intelligence and machine learning now allow AI-enabled platforms to autonomously execute tasks that had been previously performed by humans. For example, the competence of AI-enabled platforms in the realm of writing and art has been at the forefront of cultural debates recently (Anderson and Anderson, 2007; Allen et al., 2005; Boden, 2016; Boddington, 2017; Brynjolfsson and McAfee, 2016; Bostrom, 2016). AI is now rapidly developing, globally available, and used in its many iterations. However, as with other technological advancements, there is a concern that the rise of AI brings new risks for the future of jobs (Anderson and Anderson, 2005; Allen et al., 2006). As the prevalence of AI rises in peoples' daily lives, fear and concern over its implication is one of the many ways the relationships between actors in the socio-cultural system around AI can manifest.

As researchers engage with AI, these social dimensions must be considered before deploying AI as a tool in our own work. For example, the Remesh platform engages participants through voting on other participants' responses, and then calculates an agreement score. Because the platform is fully text-based, researchers must carefully structure questions to ensure clarity and ease of response, thus ensuring ease in voting. In the case of conversations with sensitive topics, the researcher may consider forgoing the voting exercise altogether to ensure participant privacy. As researchers continue to engage with platforms like Remesh to aid in qualitative research projects, it is beneficial to access training and gather new data on

the ethical and social issues related to AI and continue to discuss useful approaches and observed changes.

Finally, when it comes to interacting with AI-enabled tools, there is not only the researcher's perspective on AI but, inevitably, the interaction between the researchers and the engineers who build and maintain the AI algorithm. Diana Forsythe (2001) writes about the differences in which engineers and social scientists see the world, and the rifts that develop between disciplines because of that difference. Forsythe writes that social scientists and engineering professionals have an inherently different way of understanding knowledge. For 'knowledge engineers' the nature of knowledge is not problematic, thought of as an absolute, based on formal rules, and is a purely cognitive phenomenon. In contrast, social scientists think of knowledge in terms of its relationship to social and cultural contexts, with variations between right and wrong, and as a social and cultural phenomenon in addition to being a cognitive phenomenon (Forsythe, 2001). In this sense, the socio-technical ecosystem around AI incorporates many actors, including the humans who built the algorithm.

As ethnographers, to truly understand and successfully employ AI technology, we must strive to understand the makers of AI algorithms and the way they think about knowledge through a social science approach.

BREAKFAST RITUALS AS AN ALGORITHMIC SPRINGBOARD

To explicate the socio-technical entanglements researchers experience when interacting with AI-enabled systems, the authors employed the Remesh platform to carry out a singular research study with 19 participants in a Remesh Flex asynchronous conversation. Since the subject of the conversation was not central to analysis, the authors opted for a light and engaging topic focused on breakfast rituals. As every person's breakfast experience varies based on their preferences, family, culture, geography, and socioeconomic status, a conversation discussion guide was written to elicit a variety of agreement and disagreement interactions in a way that did not spark an ethical debate. Convenience sampling was selected as the sample recruitment strategy, with under the age of 18 being the sole terminating factor. Participants were asked their age, gender, to identify their favorite meal, how often they eat breakfast, and whether they were raised in the US or another country up to age 16 before the conversation began.

Once in the virtual 'room', participants were asked a series of Poll (quantitative) and Ask Opinion (qualitative open ended with participant voting) questions related to their early memories of breakfast, similarities between their breakfast preferences as a child and an adult, American breakfast habits through time, and were shown images of American breakfast in the 1800's and 1900's. Participants were asked to select which breakfast they would eat and why.

Six Ask Opinion questions generated a variety of robust responses, with some participants offering very rich answers and specific memories. From a researcher perspective, the data set was high-quality and would provide rich insight if 'breakfast rituals' were the lens of analysis. Each response was analyzed using the Remesh preference-inference algorithm and assigned a 'percent agree' score.

HOW REMESH USES MACHINE LEARNING: INFERENCING TO PREDICT PARTICIPANT BEHAVIOR

Remesh's preference-inference algorithm processes participant responses semantically, mathematically representing the meaning of each response to identify how similar responses are to one another. Response similarity helps the algorithm more accurately predict utility scores. Each response is then passed through a Natural Language Processing (NLP) Term Frequency – Inverse Document Frequency algorithm to identify how often a term appears and estimate the importance of each term. Key to calculating the output of the algorithm is the preference voting process each participant experiences.

Of the four question types available on the platform, 'Ask Opinion' question responses are processed by the preference-inference and NLP algorithms. The moderator asks an open-ended Ask Opinion question, to which participants then respond to and submit their answer. After submitting their answer, participants are then prompted to vote during two exercises on other participants responses. First, participants are randomly presented with a single response and asked to agree or disagree with the response, repeating the process five times. This exercise gives the preference-inference algorithm an absolute baseline on what types of responses the participant agrees or disagrees with. Second, participants are shown two responses from other participants in a binary choice exercise. Participants are asked to select the response they prefer more, again repeating the process five times. This exercise gives the preference-inference algorithm a relative signal of agreement of responses, which are then sorted in order of agreement. The more times a participant votes (such as in additional Agree/Disagree or Binary Choice exercises) the more the algorithm learns about their preferences and does a better job at predicting voting behavior. The algorithm reflects its learning in two ways:

1. In the Agree/Disagree exercise, participants indicate whether they agree or disagree with a randomly selected response. The algorithm records a (+1) for agree and a (-1) for disagree.

2. In the Binary Choice exercise, participants select the response they agree with more. The algorithm learns the participants has a higher preference for that response and records a (+1).

Depending on the time left to complete the question in a Live session (all questions are timed), participants may repeat the voting exercises with new responses. In a Flex session (an asynchronous conversation option) questions are not timed but participants participate in the same voting exercises.

Up to 1,000 participants may participate in a Live Remesh conversation, and up to 5,000 in a Flex asynchronous conversation. As such, it would be impossible for every participant to vote on every response submitted to an Ask Opinion question in a timely manner. The preference-inference algorithm, however, will have collected enough participant voting behavior to infer how an individual participant would vote on a specific response and the algorithm works to fill in the blind spots. For example, suppose four participants are voting during a Remesh conversation. As seen in Figure 1, Participant 1 has voted on three responses and scores have been recorded. The participant agreed with Response 1, was neutral on Response 2, disagreed with Response 3, and did not vote on Response 4. The voting behaviors of the other three participants were also recorded.

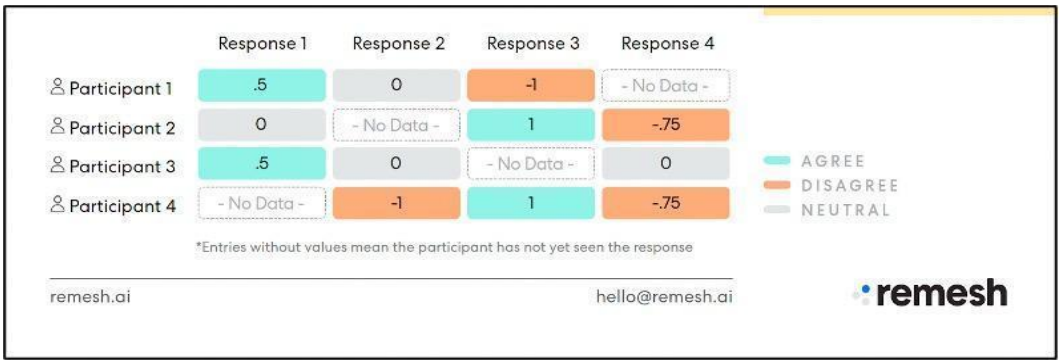

Figure 1: Remesh Preference-Inference Algorithm Voting Grid. Source: Remesh, 2023

Problematically, there is data missing in Figure 1 – all participants failed to vote on at least one response, leaving gaps in the grid. The preference-inference algorithm, having learned participants' preference behavior, can now infer how they would most likely vote on responses with missing data. Participants 2 and 4 voted similarly on Responses 3 and 4, and therefore the algorithm will infer these participants would vote similarly on similar responses and fills in the blanks. Since the algorithm can't know exactly how a participant will vote, it is programmed to 'hedge its bets' and completes blank spaces in the grid with smaller values (see Figure 2).

Figure 2: Completed Preference-Inference Algorithm Voting Grid. Source: Remesh, 2023

Once the algorithm has learned participant voting behavior it can produce outputs, which the preference-inference algorithm calculates as a 'percent agree' score. This value is calculated by counting the number of participants with a positive preference for the response and divided by N (see Figure 3).

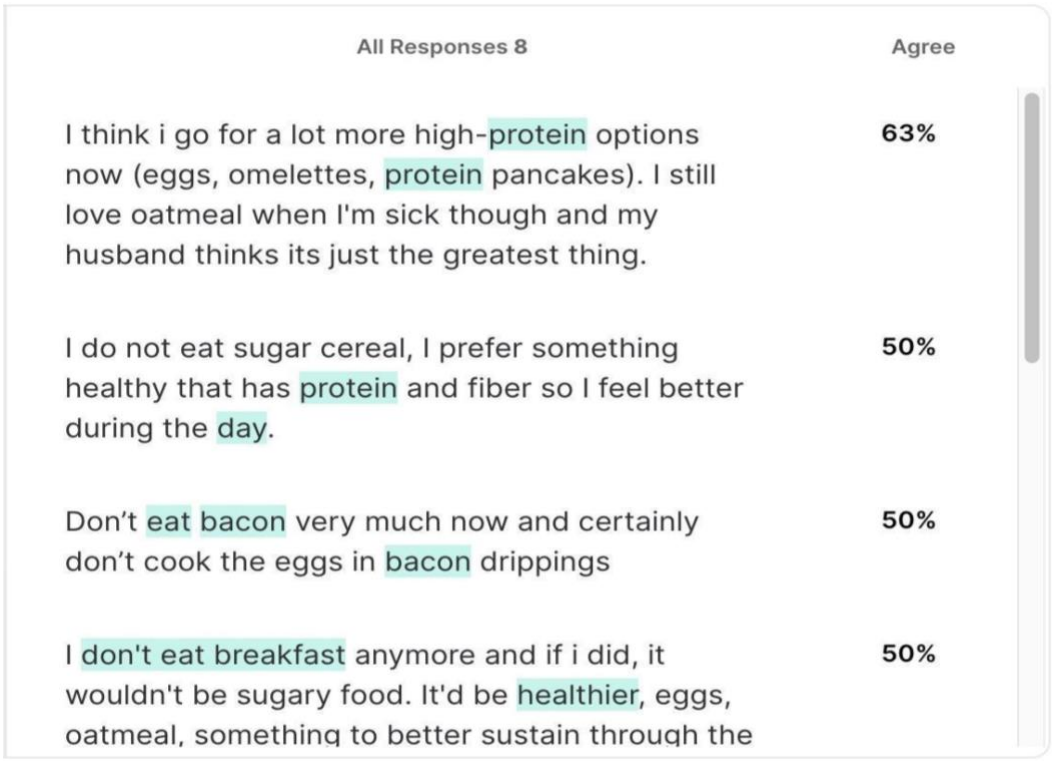

Figure 3: Participant Responses with Percent Agree Scoring. Source: Remesh Conversation, 2023

Participants were asked the following question: "In what ways are your current breakfast choices different than your child/teen breakfast choices? Why are they different? Please describe." After typing and submitting their own response,

participants voted in the Agree/Disagree and Binary Choice exercises. The preference-inference algorithm then assigned percent agree scores to every response, as seen in Figure 3. The top agreed response 'I think I go for a lot more high protein options now…' was scored at 63%, meaning 63% of participants are *predicted to agree* with this statement. Do 63% of participants *absolutely agree*? The researcher, and the algorithm, cannot make that claim because every participant does not vote on every response. But if participants vote truthfully, the preference-inference algorithm will make its best prediction based on their voting behavior and the researcher can be confident the scores are an accurate prediction.

Algorithms and Qualitative Research

Where ethnographers and algorithms intersect is in the search for patterns (Munk, et al, 2022). The path to elucidating patterns, and the output generated because of these patterns, may be wildly different – with the ethnographer leaning toward fieldwork and thick description in the form of language and the algorithm relying on large data sets of 1's and 0's to perform calculations and create numerical outputs. The ethnographer, however, is typically trained in self-reflexivity and understands the importance of situating themselves as an element in the research process, but the algorithm has no such self-awareness and is often – inappropriately – positioned as neutral or culturally agnostic because it is solidly situated in computation. Algorithms, like any other man-made construction, are encoded with social values (Elish & boyd, 2018). Imbued in late capitalism's value of *hard work* – the coding, problem solving, cleaning, curating, debugging, testing, and training the engineers have performed in creating and maintaining the algorithm (Elish & boyd, 2018) – the speed, efficiency and trueness of the algorithmic output confirms the hard work. The ethnographer, situated at a distance from the algorithm's makers and maintainers, and removed from the 'work' of the algorithm itself (the opacity of algorithms and the pace at which they operate can cause consternation as the work is occurring 'in the machine'), is entangled in hard work regardless how seamlessly the output is generated, and regardless of their own personal perspective on algorithmic 'work'. As a beneficiary of its output, the ethnographer must reckon with this layered positionality in addition to their own self-reflexivity in the research process. Particularly as it relates to value, an ethnographer is especially susceptible to discounting hard work in this context because of their distance from the makers and maintainers.

TOWARD A MODEL OF RESEARCHER-AI INTERACTION

As AI usage in qualitative research is in early and tenuous stages of relationship development, the authors have sketched a nascent model of researcher-AI interaction informed by Actor-Network Theory and designed around the specific interactions observed in a Remesh conversation (see Figure 4). This proposed model

is situational and will most likely require modification for other AI-enabled research tools, but what should hold true is how researchers and engineers (both makers and maintainers) interact with algorithms or an algorithm.

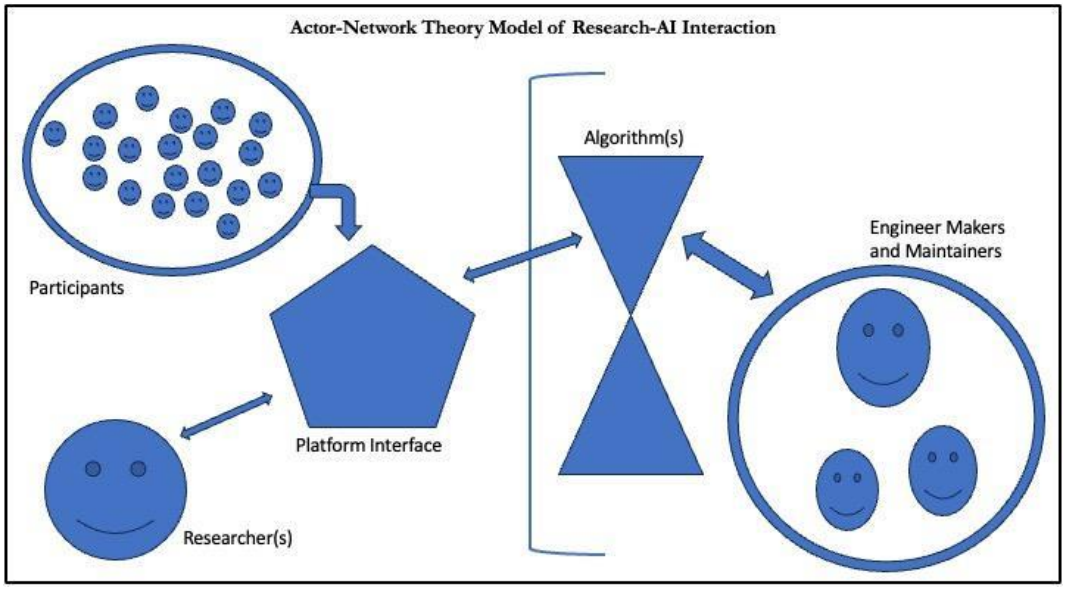

Figure 4: Actor-Network Theory Model of Researcher-AI Interaction. Source: Walsh & Pallas-Brink, 2023

A researcher (single smiley face on the left) will never directly interact with an algorithm and will experience the algorithm as a set or sets of outputs delivered via a platform interface (represented by the pentagon). Participants (group of smiley faces on the left) will enter their data into the platform interface to be processed by the algorithm but never interact with it directly. The bracket indicates the opacity researchers and participants experience – they have no 'view' into the algorithm. Makers or maintainers (group of smiley faces on the right) will interact directly with the algorithm because they must work to code or program the platform where the algorithm lives and does its work. Makers and maintainers are not bounded by a bracket because they have a closer 'view' into the algorithm, as they program the algorithm directly if there are updates or changes that need to be made.

Additionally, it is important to note this model is a snapshot in time but does not represent the full variety of scenarios that might be at play. As discussed earlier, this collaborative process is happening across time and space. Researchers, participants and makers/maintainers may be interacting with the algorithm simultaneous or entirely asynchronously. Since the algorithm lives in a data cloud, access is flexible. Makers and maintainers typically interact with the algorithm in the course of their daily tasks, commonly during regular working hours. Researchers and participants will only interact with the algorithm during specific data collection

periods, when participant responses are analyzed shortly after submission. Data collection could coincide with makers/maintainers working hours; it might not.

To be sure, this model requires further explication of the human and non-human actors as well as the concepts, ideas, and factors related to the actors in the network. The authors plan additional research and theorizing of this relationship map and invite the qualitative research community to contribute to building this model.

DISCUSSION

Ethnographers have a historically tense relationship with new technologies. As Forsythe (2001) points out, ethnographers have a different way of thinking about the world and can be reluctant to embrace technological change for fear of being labeled deterministic. Thinking of AI as a partner and a collaborator in the research process can help break that barrier and encourage the community to become more knowledgeable about AI. It is not necessary to become an engineer, but embracing the possibilities of AI in research would be a critical first step, along with learning about how the technology functions and the hard work expended in their creation. Understanding the worldview of engineers who create and work with AI can also become a way to break down barriers. As qualitative researchers, we can pave the way to closer relationships between our disciplines by studying the engineer's experience and gain an informed point of view. We suggest the next step is to explore and understand the barriers for ethnographers to use AI and technology in general. We talk about technology and tools as a discipline but are rarely comfortable with them in practice. As noted by Zafirolu and Chang (2018), ethnographers may bear the responsibility toward engaging with technology as today's society is heavily oriented towards big data and positivistic ways of thinking. This focus holds true for the approach Remesh takes in how it problematizes qualitative data, and 'solving' this problem with numeracy. In applying AI to qualitative data, the implied problem is that *qual is not quant*. As ethnographers, we know qual is not quant for a very good reason – qualitative data offers insights centered on 'how' and 'why,' versus the 'what' and 'how many' of quantitative. The function of every algorithm is mathematical, whether it's preference-inference ML calculating a percent agreement score at the speed of light, or a large language model like ChatGPT tokenizing words so that it can respond to a prompt. Even as the ethnographic community has positioned its way of thinking as critical to understanding the world and an important strategic partner for solving sticky problems, the tidal wave of AI is unavoidable. Ethnographers now and in the future, to have any semblance of control over AI-enabled qualitative data analysis, must gain familiarity with how algorithms are constructed, their behaviors, and their limitations, as well as an in-depth understanding of the engineers involved in the creation, deployment and upkeep of algorithms. This expert knowledge can become a critical tool in the ethnographer's

toolkit, allowing for deeply contextualized and insightful interpretation of AI outputs, and affording new consideration of self-reflexivity in socio-technical entanglements. As the community gains deeper knowledge, how and in what ways we value the hard work of AI can be based on the realities that actually exist versus sensationalized fantasies driven by fear of the other.

Finally, it is important for researchers to embrace AI-enabled tools as partners, not adversaries. To do this, ethnographers must carefully examine the roles of each of the actors in the network. A successful collaboration between a researcher and AI exhibits clearly defined roles and expectations, based on new data about various interactions of researchers and AI. As part of this partnership, we must be careful as to not replicate the excusing power hierarchies in our society. Forsythe (2001) writes of the erasure of women in informatics, and this can be applied to other marginalized groups as well. As we engage with these tools, it is critical to ensure the stories and experiences of all groups are present in the narrative, and that any biases that exist within the algorithm adjusts to not only represent but also critique inequities in current society.

CONCLUSION

As the prevalence of AI-enabled research platforms in the qualitative research industry increase, researchers must be mindful of the socio-cultural engagements and the relationships formed and transformed through these entanglements. As practitioners of the social sciences, we must engage critically but also introspectively with all aspects of AI technology, including other users and makers. It is important to these new technologies as one of the tools available to us, and treat the work done with AI in a collaborative manner, but keeping in mind the exact roles that each actor performs in the collaboration. The proposed model is a starting point for acknowledging the hard work of all actors involved in data analysis, and an invitation to explicate the importance of valuing each other's hard work.

ABOUT THE AUTHORS

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Researcher Positionality & Identity Validation:

A Case Study in Organizational Friction over the Framing of a Demographic Questionnaire

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This case study, co-authored by junior and senior members of a design-research organization, examines internal friction that arose from junior researchers proposing to expand the sex and gender options on a data collection tool. This proposal blossomed into a larger debate around researcher positionality and the intended purpose of the data collection tool. This case study traces how the organization navigated this friction, outlines the literature they used to anchor their debate, and summarizes the language and practice standards ultimately adopted by the team. This discussion, occurring over several months, was complex and challenging, particularly within an organization that valorizes transparent, collaborative, and human-centered decision-making. We believe this case study, showcasing the researchers' efforts to navigate these sensitive issues, holds value for other researchers and organizations negotiating not just specific demographic terms, but differing understandings of roles and identities held by early-career and late-career researchers. Keywords: positionality, research practices, friction, career stage, gender, demographics.

INTRODUCTION

The Public Policy Lab (PPL) is a nonprofit design studio that works to improve public policy and services. Iteration and innovation are core values of our project work, and we also apply the same approaches internally, using workshops and biweekly all-team meetings to collaborate on big decisions as a group. So when a junior researcher questioned how we capture information about research participants' gender during our research engagements, this investigation of our status quo felt commonplace. The subsequent nature and breadth of our internal friction, however, pushed our organization into a challenging but ultimately productive engagement around the meaning and intentions of our research practices.

Our junior researchers were in agreement with one another that we should alter the terms we use to describe gender, while our senior researchers sought to open up a wider conversation about the motivations and values of our data-collection processes. We grappled with what type of infrastructure we could create to advance these multiple points of view in a productive way, while also trying to get to mutual understanding about each school of thought. Ultimately, we developed a new framework for demographic data collection that speaks to all of our team's interests, while not seeking to smooth or buff away a friction that's fundamental to the differing worldviews of our team members.

PRE-EXISTING PRACTICES

Our demographic questionnaire is part of a multi-step data-collection process that PPL has iterated on often over the years. The process begins with the researcher explaining the background and goals of the project to a potential participant, as well as informing them about the benefits and possible risks of taking part. We then go through a series of consent questions that allow participants to opt in or out of various types of data-sharing. Participants can agree to our researchers recording the conversation for the sake of note taking and transcription on one line, for example, but then opt "no" for that audio recording being used for quote soundbites. We believe this type of fine-grained consent shares power with the participant and gives them increased agency in the interaction. After we've conducted these steps, we dive into the meat of the research engagement, which could use a variety of methods, from a semi-structured interview to a co-design workshop.

After we've completed the research activities, we come back to the consent form and ask the participant if they want to make changes—for example, if a participant ended up sharing a very personal story and would like to revoke the ability for us to quote them directly. Once the participant has edited or re-affirmed their consent answers and reviewed any photographs we've taken, we then ask them to fill out a short demographic questionnaire. We explain to participants that we administer this questionnaire to ensure that we're speaking to a diverse sample of participants that's reflective of the populations relevant to our project area. We also inform them that all questions are optional. The questionnaire fits on a single sheet of paper and asks participants to indicate their age range, racial/ethnic background(s), gender, income quintile, and education level. The provided race and gender options align with the U.S. federal census, with the addition of a "prefer to describe" open-ended option. This sheet, or one question on this sheet, was the source of our organizational friction.

DIFFERING PERSPECTIVES

Friction began when a junior researcher took issue with one of the questions on the demographic questionnaire that asked research participants "What is your gender?" Participants could select from one of three answers: male, female, prefer to self-describe. The junior researcher proposed that these answer choices were inaccurate, as male and female were sexes assigned at birth, not genders. The junior researcher also argued that there were many other genders, besides man and woman, that should be included as options on the survey. The junior researcher spoke to other junior researchers and prepared a memo explaining their perspective and proposing an expanded list of gender terms.

A senior researcher was concerned that the specific issue of terminology for gender was too narrow, in that it didn't engage with the intended purpose of PPL's demographic data collection. PPL began collecting demographics of research

participants to compare against the baseline user data collected or used by service providers and/or government partners (or, absent any service-specific baseline data, to publicly available data sets such as the American Community Survey). The purpose of this comparison is to both understand if our research sample is broadly representative of service users and to also explain our sample's make-up to project partners. Many of PPL's government partners (and government data sets) do not collect information on gender categories beyond man and woman; PPL also uses many other similarly broad demographic categories (e.g., "Asian" or "65+") that elide significant experiential differences among people who fall into that defined category. Was the junior researchers' interest in collecting sample data to compare against population data? To advance research best practice by asserting new norms for demographic categories—limited to gender or more broadly? Or to provide identity validation to respondents and researchers?

These questions did not lead to a coming together around a shared viewpoint—rather they intensified a sense of difference and missed connection between the junior and senior researchers and led to the refinement of new claims. The junior researchers had three arguments: 1) If the purpose of the demographic data is national standard comparison, there are many national standards that acknowledge genders beyond man and woman. New York (the state where our organization is based) birth certificates, New York driver's licenses, U.S. passports, the Census's Household Pulse Survey, the National Victimization Survey, the Health Center Patient Survey, and the CDC Behavioral Risk Factor Surveillance Systems Survey all include an option for nonbinary and transgender people. 2) Demographic data collection serves another key purpose: identity validation for research respondents. Multiple studies demonstrate that LGBTQ+ people feel more comfortable and satisfied with surveys that have gender-inclusive questions, which enable them to accurately select their gender. Junior researchers clarified that their argument had nothing to do with identity validation for researchers themselves and pointed out that their proposal could have just as easily been brought up by researchers who did not identify as LGBTQ+ and the same reasoning would hold true. 3) From a research data perspective, there is value in expanding gender options, as identifying gender-diverse respondents helps PPL understand the unique issues these groups face. This is especially important, because LGBTQ+ people are significantly overrepresented in some of PPL's research projects (e.g., 40% of youth experiencing homelessness identify as LGBTQ+). The American Journal of Public Health writes that non-representation of transgender individuals in surveys hinders an understanding of the social determinants this group faces.

The senior researcher had differing points of view: 1) PPL's first responsibility is not to a national standard comparison, but to match our demographic data to our government partner's data, in whatever form they collect it, or to the closest available public data set. If our goal is to make sure we're speaking to a representative set of our partner's clients, we need to compare our research

respondents directly to that pool of clients, using the characteristics our partners already collect and have available for us. On the junior researchers' second argument, the senior researcher had a very different perspective: 2) It is not the researcher's role to validate a participant's identity nor to necessarily connect with a participant on a personal level, even if the researcher and participant may share demographic characteristics. There are analytical, ethical, and safety advantages to an 'impersonal' positionality when conducting research with respondents of highly divergent views and backgrounds (often very different from the researchers themselves) and in reporting research findings to the organization's partners and funders, many of whom hold very different identities from those of their client populations, with whom the research is conducted. 3) And while PPL has certainly done research that focuses on the experiences of young people, among whom nearly 20% identify as LGBTQ+, we conduct the majority of our work with adults generally, only 44% of whom say "forms and online profiles that ask about a person's gender should include options other than *male* and *female*"—and the remaining 56%, although we disagree with them, are also our respondents.

Just as these polls suggest the existence of different realities, so our junior and senior researchers realized that the friction they were experiencing stemmed from fundamental differences in the way they each viewed a professional researcher's role. Junior researchers believed that a researcher should prioritize trust-building and personal authenticity between themselves and the research participants—and that the external descriptive categories they apply to themselves and others are never neutral but hold the power to form and alter the social world. Junior researchers pointed out that the purpose of the organization was to serve the American public, especially those who historically have been marginalized, and asserted that a researcher at this organization should therefore choose categories that prioritize a feeling of inclusion for marginalized populations. The senior researcher observed that research is paid labor conducted in a constructed social context in which neither participants nor researchers are their 'true' selves—and that a commitment to making researcher and respondent identity totally and mutually legible could be professionally problematic and personally dangerous, given how often professional researchers must engage with curiosity and courtesy even with respondents whose behaviors or beliefs they find alien or even repellent. A constructed neutrality, even if inaccurate, serves as a valuable professional fiction. Collectively, the team decided that rather than continue to grind away at each other's world views, we'd dive into literature around the frictions associated with researcher positionality and see what insight we could find.

LITERATURE ON RESEARCHER POSITIONALITY

Researcher positionality "describes an individual's world view and the position they adopt about a research task and its social and political context" (Darwin Holmes, 2020). This positionality is central to all aspects of research,

affecting what the researcher chooses to study, how they conduct the research, and what outcomes they find (Malterud, 2001, Grix, 2019, Rowe 2014). A researcher's positionality is influenced by their personal characteristics, such as their gender and race, as well as their fluid subjective experience (Chiseri-Strater, 1996). We explored several approaches in the literature to understanding and responding to researcher positionality.

The longstanding idea of *emic* or *etic* positionality originated in the linguistics field and was imported into anthropology in the 1950s (Mostowlansky and Rota, 2020). Emic and etic refer to two different ways of conducting/viewing research and offer a frame for considering a researcher's relationship with or to their respondents. The emic, or insider, position is about "grasping the world according to one's interlocutors' particular points of view." Meanwhile, the etic, or outsider position, aims to "establish an objective, scientific approach to the study of culture" (Mostowlansky and Rota, 2020). Superficially, these two positionalities might seem to track with an 'insider' approach taken by our junior researchers and an 'outsider' positionality posited by our senior researchers—but our own experience, like that of many researchers, was a more nuanced combination of both.

In one case study, linguistic ethnographers working in elderly care facilities in Sweden interrogated their relationships with research participants, investigating whether an emic or etic identity served them better (Jansson and Nikolaidou, 2013). Ultimately, they found that this dichotomy was overly simplistic and that, while they initially viewed themselves as outsiders working towards an insider perspective, they realized that an outsider positionality was never fully possible: "all researchers are close to their research participants in one way or another" (Jansson and Nikolaidou, 2013). The researchers realized the value in embracing and understanding the ways that their identities interacted with the participants' identities: "It was through unravelling the institutional, professional, and individual aspects of their identities, but also through opening up our own selves and our own identities that we gained their acceptance. In other words, it can be argued that ethnographic work at its best took place only when we started negotiating who we were in relation to the research participants and vice versa." (Jansson and Nikolaidou, 2013). At PPL, the senior researcher had found, again and again, that she had some of the most profound experiences of mutual understanding with research respondents with whom she shared few demographic or experiential similarities. The junior researchers also observed that when they conducted research with members of the public with whom they shared many identity characteristics, they often learned about ways that participants' identities interacted with the environment in different ways, producing experiences that were different than the researchers' own experiences.

Ultimately, as Jansson and Nikolaidou found, the emic/etic debate may be a false and outdated dichotomy. Researchers inherently occupy the positions of both the insider and the outsider and there must be space for this nuance to be examined. Further, what constitutes a 'culture' is not firmly bounded, so it's not always easy to

say when one is 'outside' or inside.' In their paper "The Space Between," Dwyer and Buckle examined their positionality to their research participants. While Dwyer entered the research as an 'insider,' interviewing other white parents of children adopted from Asia, and Buckle entered the research as an 'outsider,' interviewing parents who had lost their children which Buckle had not, both found themselves occupying a space between. Dwyer found that she shared experiences and opinions with some of the parents she interviewed but not others; meanwhile, Buckle found that though she did not know the loss of a child, she could relate to her research participants around the experience of loss and grief. The authors write, "Surely the time has come to abandon these constructed dichotomies and embrace and explore the complexity and richness of the space between entrenched perspectives" (Dwyer, Buckle 2009).

For more than four decades, it's been best practice in human-research fields for researchers to engage in reflexive consideration of their own positionality. Reflexivity "suggests that researchers should acknowledge and disclose their own selves in the research, seeking to understand their part in, or influence on, the research" (Cohen et al., 2011). Reflexivity does not mean that the researcher is completely removed from the research, but rather that they are discussing and thinking critically about the way their position affects their work. The process of reflexivity can be difficult and time-consuming, especially for novice researchers, who may struggle with identifying and understanding their positionality (Darwin Holmes, 2020). A narrowly reflexive approach may also have the unintended effect of focusing too much attention on the researcher's own identity and positionality, in lieu of highlighting the reciprocal creation of shared knowledge that is a core feature of respectful human research.

While reflexive practice is an individualist approach to interrogating researcher positionality, an alternative and collective model is offered by professional and organizational codes of ethical conduct. Professional associations such as the American Anthropological Association (AAA) and the Association of the Social Anthropologists (ASA) in the United Kingdom detail standards for the behavior of researchers that are agnostic to the positionality of the researcher. Per these codes, all researchers should seek to "maintain respectful and ethical professional relationships" and to be mindful of the "real and potential ethical dimensions" of their engagement in "diverse and sometimes contradictory relationships" with their collaborators (AAA). As noted in the ASA guidelines, "concerns have resulted from participants' feelings of having suffered an intrusion into private and personal domains, or of having been wronged, for example, by acquiring self-knowledge which they did not seek or want" (ASA). The obligation of the researcher, these codes remind us, is not solely (or even primarily) for the researcher to understand themselves, but for the researcher to notice and minimize the potential negative effects of their research even as they seek to understand some aspect of their respondents' experience.

Ethical codes can serve to protect both respondents and researchers from bias and from the intimacy and exposure -- and subsequent risks -- that human research can engender. Indeed, researchers may find themselves at risk when interacting with participants. One anthropologist recounted how during fieldwork in Nigeria, the research dynamic of participants sharing vulnerable stories about themselves created an inherent expectation of reciprocity that she would compensate them with a small gift, money, etc. Some of the male research participants she spoke to expected that she would compensate them through sexual favors, exposing the anthropologist to dangerous, risky situations (Johansson, 2015). In more than a decade of conducting and overseeing research at PPL, the senior researcher observed many instances where our engagements with Americans dealing with poverty, homelessness, mental illness, and other challenging situations led to feelings of intimacy, responsibility, and expectation—both on the part of researchers towards respondents and also from respondents towards researchers—that felt ethically and emotionally difficult.

NAVIGATING THE FRICTION

Creating a Friction Resolution Road Map

One of PPL's defining characteristics is the way we embrace iteration, both in our project work and in our internal organizational work. We change elements of our research practices often, make edits to materials, alter protocols, and have even overhauled our pay scale based to respond to management aspirations, employee proposals, and all-team discussions. This is not to say that we are immune from the discomfort that often accompanies friction, but we are familiar with it, and we have systems in place to move through it. This case, however, felt particularly fraught—maybe due to the differing generational perspectives, the highly personal subject area, or because of the political moment in which it was ensconced. Both cohorts identified these factors quickly and knew that we would need to design a new system to navigate it. Together, interested team members formed a working group to design a path to conflict resolution. This working group was a mix of seniors and juniors, who, although having conflicting viewpoints on the specifics of the questionnaire, were mutually committed to forging a new path forward that felt, if not good, at least acceptable to all involved. Their plan included two loosely-facilitated discussions between project staff, and then three larger discussions with the full organization. We also utilized a few artifacts and stimuli to ground our conversations.

The two non-senior sessions took place during standing research meetings. These sessions gave junior researchers a space to gather their thoughts and clarify their arguments in the absence of senior leadership. This felt particularly important because many of the organization's junior researchers identify as queer and gender diverse and, given that this friction struck a personal chord for them, they craved space not only for discussion, but to feel heard and validated by others with similar

identities. During the sessions, junior researchers discussed why they believed the questionnaire should change, proposed new alternatives, and aired out their feelings about how this debate was impacting them personally. This first non-senior session was an open-ended discussion, while the second session was spent reviewing precedents, compiling comparison research materials in a collaborative document, and clarifying what junior researchers believed to be the ideal updated version of the demographic questionnaire.

With a clearer consensus among the junior researchers of how they wanted to frame the argument and what their ideal outcome would be, we moved into the second portion of discussions, this time with the full team. In the same way that the junior researchers had a moment to clarify their argument, the working group similarly asked the senior researcher to write out her thoughts in a succinct document that the team could review and digest on their own before debating in real time. The senior researcher's "13 theses," as they came to be jokingly called, were circulated among the team a few days ahead of our first all-team session (though not nailed to the door). The first nine theses made claims about the broader topic of researcher positionality and its proposed role in PPL research practices, while the latter four theses addressed the topic of the demographic questionnaire specifically. The senior researcher asked the entire team to review the theses and write their responses, critiques, questions, and discussion points in a collaborative document to serve as anchors during the full-team discussion. Asynchronous back-and-forth about each of the theses turned the "13 theses" document, which was originally five pages, into a 15-page document, which the team referenced and further expanded on during and after team-wide discussions.

Team-wide Discussions

The first full-team discussion focused on the first nine theses, centered on research positionality. The theses are roughly summarized as follows: the purpose of the organization's qualitative research is to fuel invention – to harvest people's experiences from them and use those stories to make things – which make the research necessarily *extractive*. At the same time, the researcher has a moral responsibility to limit unforeseen or undisclosed harm to the research participants and ensure that the research is not *exploitative*. This balance – between a practitioner's functional work requirements and their moral responsibilities toward people on or with whom they conduct their paid work – underpins researchers' informed consent procedures and positions the researcher as what they are: a paid and intentional producer of knowledge, operating in a professional capacity. Researchers must be transparent and open about their role, carving out an interaction space that suspends normal social rules and allows for unusual candor on the part of the participant and a suspension of judgment on the part of the researcher. This is not the same as cruelty or carelessness—and this does not, in any way, indicate the suspension of critical analysis. If a genuine consent process has been carried out beforehand, this

interaction space is something that the participant has agreed to – and the researcher must respect the participant's agency in this choice. Of course, the unevenness of this interaction will lead to a build-up of emotion and opinion in the mind of the researcher, which can be harvested post-engagement in the debrief and which can serve as a wellspring for personal and professional growth (though that may not feel easy or safe).

Junior researchers primarily took issue with three of these tenets – (1) that research is inherently extractive; (2) that researchers can or should form professional identities distinct from their personal identities; (3) and that researchers can or should withhold emotions during the research engagement until the debrief – opening up subsidiary discussions that went over the allotted meeting time, because everyone had different viewpoints they wanted to express. Many team members (both junior and senior) shared examples from their experiences as researchers, as research participants, and as people who inhabit many overlapping identities. As the conversation progressed, there was also meta-commentary and critique about the way the conversation was being conducted and how team members thought experiences should be handled. One junior researcher wrote on the Google Doc, "Also (because we ran out of time), in this conversation I've observed taking people's experiences into account as "potentials" or "maybes" and I think when people share their experiences it should be acknowledged that they are experts in their own identities… [I] wanted to acknowledge the historical and cultural weight of this, especially when so many of our BIPOC researchers were sharing their experiences in comfortability in research." The senior researcher replied, "Institutionally, the PPL is not going to engage in any ranking or comparative valuation of people's past bad things—nor can the organization even assess the weight of any bad thing in its own self…You may choose to share your past life experiences at work, if you so desire, but your choice to disclose should be undertaken without any expectation that it compel actions or feelings on the part of your colleagues." After the discussion ended, team members continued to reflect on this dialogue, to sit in the discomfort of their differing viewpoints, and to consider the viewpoints of other members of the team.

The second full-team discussion occurred two weeks later and focused on the latter four theses, which outlined the senior researcher's theories of how researcher positionality informs the demographic questionnaire, summarized as follows: the questionnaire is intended to help the organization demonstrate how its research respondents are reflective of the system/community it is investigating. More specifically, researchers may compare the demographic data of a research population to baseline data about service users to demonstrate that their sample is broadly representative, they may use demographic data to report on which demographic factors correlate with which service experiences, and they may use demographic data as a contributing storytelling device to position qualitative findings in the context of observable characteristics. Finally, the proposal to alter demographic categories to be

more inclusive of participants' gender identities raises a number of questions. These questions, which constitute the thirteenth thesis, are listed below.

13.1. How might the inclusion of additional defined choices for gender identities improve our ability to use respondents' demographic data for the comparative purposes described above?

13.2. Can we weight the utility of using defined (multiple choice) demographic options for gender identity vs. the value of using an open-ended question that allows respondents to frame their answer in their own words?

13.3. What are the trade-offs around PPL seeking to maintain a standardized list of defined choices for gender identities that is consistent across all PPL projects versus shifting to developing a unique questionnaire for each project?

13.4. How might the inclusion of additional defined choices for gender identities generate distrust or discomfort among some respondents, even as it creates trust and comfort for others? E.g., by including more specific and close-ended gender categories, what feelings might we generate among respondents with cultural or religious commitments to binary gender identities?

13.5. How should we navigate tensions around safety, privacy, and/or divergence between interior awareness and external perception? E.g., by making our gender categories more specific and close-ended, are we asking people to 'out' themselves?

13.6. How does the inclusion (or non-inclusion) of additional defined choices for gender identities suggest a positionality or judgment on the part of PPL researchers regarding respondents' gender identity?

13.7. Do PPL researchers have strong personal beliefs around the inclusion of additional defined choices for gender identities that are external to PPL's research needs? What opportunity does that present for reflexive investigation around the relationship of personal identity to professional identity?

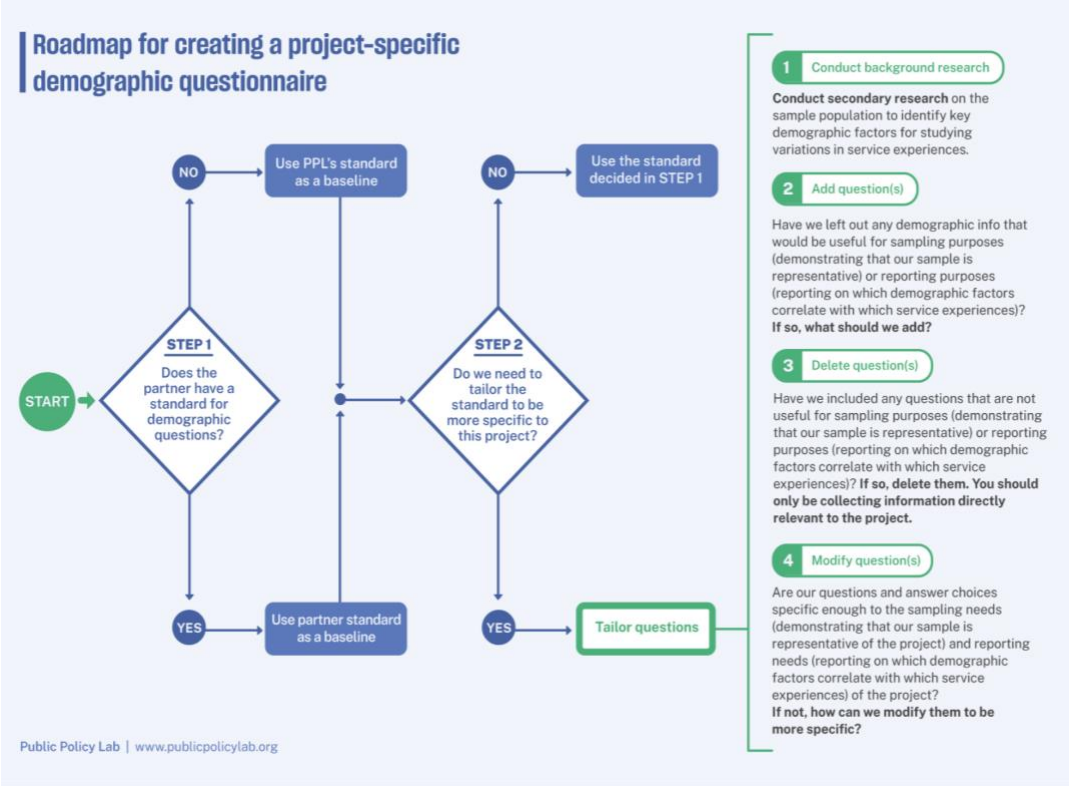
13.8. What might our discussion of all of the above suggest about the framing of our questions that seek information on people's racial/ethnic identities, their age, and their class position (as reflected by income and education level)?

This second team workshop had a different tone than the first workshop. While junior researchers still disagreed with some of the tenets of the senior researchers' theses – e.g., junior researchers argued that the demographic questionnaire should serve to not only demonstrate how the research sample is representative but also validate research respondents' identities – they had a better understanding of the senior researcher's perspective. The questions from the senior researcher's 13th thesis served as a launching point for the team to evaluate the demographic questionnaire as a whole. As the team confronted different answers to the 13th thesis's questions and struggled to come to a conclusion of how to rewrite the gender question – e.g., for 13.5, junior researchers argued that gender-diverse options were not asking anyone to 'out' themselves, but were just making space for different identities, while the senior researcher continued to hold privacy and safety concerns about collecting non-binary gender data with and for government agencies – the juniors researchers also came to understand the senior researcher's view that this same scrutiny could be applied to the other questionnaire questions. For example, how did the organization decide how to group different racial groups together or different age groups together? Furthermore, how did the organization decide which demographic questions to ask in the first place? The team began discussing alternative ways to frame the demographic questionnaire, the questions on it, and the categories of the answer choices. Both junior and senior researchers agreed that the survey needed to have a clarified process behind it.

Preliminary Outcomes

Junior and senior researchers ultimately decided that a one-size-fits-all demographic questionnaire no longer met our needs as an organization. Our demographic questionnaire needed to be tailored to each specific research project. First, each project has different project partners who have different baseline data. In order to demonstrate that the research sample is broadly representative, the demographic survey should collect data that is as similar as possible to the data that partners routinely collect. Second, each project studies a different system user population. In order to observe if demographic factors correlate with service experiences, the demographic questions should be tailored to capture the characteristics of the population in question. For example, for a project studying the healthcare experiences of older Americans, it would not make sense to use the standard age categories of "18-24; 25-34; 35-44; 44-54; 55-64; 65- 74; Over 75." Rather, it would make more sense to begin the answer choices with 65 years old and incorporate more granularity, e.g., "65-70; 70-75; 75-80; 80-85; 85-90; 95-100; 100-105."

The team worked together to create the following weighing tool, which can be used to tailor the demographic questionnaire to each project.



What does this mean for the gender question? There may be some projects in which the gender question is completely omitted if the partner agency does not routinely collect information about service users' gender and if it is not germane to what the project is studying. There may be projects in which the question is included and the original options of "male," "female," and "prefer to self-describe" are offered if participants' gender is relevant to the project and partner agencies offer only a couple of options for participants to identify their gender. Finally, there may be projects in which the question is included and additional answer choices are offered, such as "transgender" and "two-spirit," if a large proportion of the population being studied identifies as LGTBQ+ and Native American, and identifying these respondents will help researchers study correlations between participants' gender identities and their service experiences.

Since developing the demographic weighting tool a few months before completion of this paper, researchers have applied it to two projects. In both of these projects, our project partners had data collection categories that differed from our initial baseline. We were also working with subsets of the populations whose nuance would have been lost had we not tailored our categories to capture them specifically. In this way, our new tool and protocol was proving to be successful not

only in assuaging the concerns of our internal team members but also in improving the quality of our research.

WHAT WE LEARNED

From the time the junior researcher first proposed a change to the demographic questionnaire to the time that the new weighting tool for demographic questionnaires at the organization was piloted, nine months passed. Through this lengthy process of recognizing differing viewpoints, understanding the origins of opposing perspectives, identifying a path forward, engaging in team-wide conversations, and creating a new tool together, the team learned many key lessons about navigating friction. From this experience, we've identified eight considerations that may prove helpful for future organizations or researchers who find themselves in similar situations.

1. Make the conversation tangible

Anchor the friction in something that the team can respond to directly. This can be in the form of some sort of design stimuli, a written proposal, a set of theses, an activity, etc. Having a concrete document to reference, build off of, and return to will keep the conversation grounded and prevent conversations from straying too far from the objective.

2. Contextualize the friction

Research how the friction at hand fits into conversations in the literature, conversations that the team has had in the past, and conversations that other organizations and researchers have had. Context helps the team gain a more balanced understanding of the core of the friction and figure out ways to move forward.

3. Don't rush to a resolution

Though friction can be uncomfortable, it is a useful opportunity for a team to critically examine its practices and consider new ways of doing things. Make sure that group discussions are spaced out and that team members have time to breathe, process on their own, and prepare for the next engagement. Friction is rarely just about what it seems like on the surface, and taking the time to interrogate the deeper paradigms behind different perspectives can be very fruitful.

4. Create a friction resolution roadmap

Create a roadmap for how the friction will be resolved and designate one person or a group of people on the team to oversee the conflict resolution process.

Make sure all team members are aware of the steps of this process and be transparent as the process evolves.

5. Acknowledge power imbalances

Assess power dynamics within the friction and create an infrastructure that responds to them and attempts to redistribute power, such as by having a junior-only discussion before engaging with senior leadership or providing time for senior leaders to respond in writing.

6. Create an infrastructure of support

For members of the team who have experienced violence and victimization, friction may be triggering. Find ways to incorporate trauma-responsive practices, such as creating space for discussing power imbalances and allowing team members to opt out of conversations. Let team members know that there are resources and support available for them if they need it, and ensure that there are opportunities for community-building and co-worker support. No one wants to feel they're navigating friction on their own—even participants who may have institutional power.

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NOTES

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Entangled

On the Social and Ethical Friction of Fieldwork

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This paper asks what we owe to our teams and our informants when we engage in research with and about people. Participant-observation – the defining methodology of ethnographic praxis – has long had trade-offs resulting from the many frictions inherent in it, all of which are essential to producing the unique insights and findings of this approach As practitioners, we've often turned a blind eye to these, suggesting the significance of our work outweighs the consequences. But is that always true? This paper offers an equation of sorts for articulating and assessing the underlying forces creating friction in ethnographic research. While it does not posit an all-encompassing metric, it provides a way for researchers to be more cognizant about and deliberate with the ways we use friction in our projects.

> "I went to sleep with gum in my mouth and now there's gum in my hair and when I got out of bed this morning I tripped on the skateboard and by mistake I dropped my sweater in the sink while the water was running and I could tell it was going to be a terrible, horrible, no good, very bad day."
> —Viorst*, Alexander and the Terrible, Horrible, No Good, Very Bad Day*

This paper grew from the events of January 2023, which was a "terrible, horrible, no good, very bad" (Viorst 1972) month. Not for me, per se. By most metrics, my life was good. I was deeply grateful. But that was the challenge.

As an anthropologist, my career is in large part a direct result of the people who participate in my projects as informants or colleagues. In January, many of the people who enabled my good life were most definitely *not* having a good life. Among the now-adults who had participated in my dissertation research two decades ago, Ruby (and her 7-year-old son) were homeless again amid Minnesota's freezing temperatures because of a glitch in the supportive housing program. Others were struggling to stay afloat as inflation and rents rocketed up yet again. Students and former colleagues who had been pivotal in my career development now found themselves out of jobs as massive layoffs rocked the tech industry, and new graduates struggled to find work. Even women in South Korea, where I'd spent one month on a project about femininity, were "on strike," protesting marriage and motherhood because of the way these institutions negatively transformed their lives (Jung 2023) – something we saw coming during that project and yet could not address.

Every day seemed to bring yet another story of struggle related to something I've studied. For three decades, I have loved this discipline beyond measure, and yet for the first time in my life, I began to question it. I kept hearing the admonitions of

a colleague ring in my head: "Be careful what you want to know, because once you know it, you cannot un-know it." Suddenly, I was wishing I had not asked to know so many things.

At the root of my despair lay one question: What do I owe to these people whose stories, support and lives had made my good life possible? What is my obligation to them at this – and any – moment? And what do I owe my teams whom I've now implicated in tackling tough problems?

What I was experiencing was a unique friction emergent from ethnographic praxis. Each time we engage in research, the relationships generate friction: we are objects/people encountering each other in various ways, with various degrees of force, under different degrees of pressure, and often moving in different directions. These frictions arise from the complex identities we carry through our work, and the ostensible nature of why we do this. These frictions can propel our lives along different trajectories, depending on our ability to harness or withstand them. But how to do that?

This paper draws from physics to frame the ways that the many frictions inherent in ethnographic praxis shape our lives and the lives of those who participate in our projects. I offer an "equation" of sorts for considering the intensity of frictions on us, our teams, and our informants. If friction is a necessary factor in movement, how do we conceptualize where and how these impact us and others? What happens when we ease or reduce friction in our work? What are the trade-offs and for whom? While this may not directly answer the question of "what do we owe to people," it provides a way to consider the relative costs and benefits to us and to others as we continue the ethnographic process.

THE PHYSICS OF FRICTION

Let me begin with a caveat that I am not a physicist. Thankfully, there are many of them who write for people like me. So we should consider this more of a metaphorical romp through the science of friction than a detailed and nuanced examination of the discipline. This brief section is intended to create a shared framework for how we will use friction in the remainder of the paper. With that said, let's begin.

Friction is the force that opposes the movement of one object across the surface of another that is in contact with the first; or, the force that opposes the movement of an object through a fluid (e.g., air, water). It is best represented by the equation:

Friction = the coefficient of friction × the normal force

The coefficient of friction is shaped by three primary factors:

- **The deformability of each object**: objects that are softer or more "deformable" generate greater friction
- **The roughness of the surface of each object**: irregular and rough surfaces create more friction; smooth surfaces reduce friction.
- **Whether objects are static or moving (sliding, rolling)**: objects that are moving have lower coefficients of friction than objects that are static.

The normal force is a measure of the **mass and gravitational pull of objects**: essentially, how much matter an object contains, and how much pressure pushes (or pulls) them together. The greater the mass and gravitational pull, the greater the friction.

It is important to note that friction is an inherent requirement of movement – physicists have yet to identify any movement that is truly frictionless. As friction increases, the speed of an object slows, but movement increases – think about a pair of running shoes pushing against a textured racetrack, or the larger gears on a bicycle. By implication, reductions in friction increase the speed of an object, but reduces movement – think of tires spinning on ice, but unable to propel the car forward.

Each of these factors helps inform different dynamics within ethnographic research. I'll describe each, and consider the implications for our work and for people as we increase or decrease the overall friction experience.

THE DE-FORMABILITY OF AN OBJECT

Soft objects, deformable objects, tend to generate far more friction, so much that they may just cling to the object they are trying to cross, or the object trying to move across it. Picture a ball of dough that holds together just enough to be an actual ball. If you try rolling it, the dough will be quite slow – it will stick to the surface and quickly become un-ball-like. Moreover, if you try pushing a rolling pin over the dough without adding a layer of flour between the objects, the dough will simply stick to the pin and wrap itself around the object.

For ethnographers, fieldwork often demands that we become de-formable objects. It is built into the core praxis of our methodology: we are participant-observers (c.f., Malinowski 1922; Spradley 1980; Stocking 1983). We bend and flex our identity depending on the particular moment in our research process, sometimes joining in fully with the community, erasing the lines between us and them, while at other times, standing back, observing, tracking, and parsing what we see unfolding before us. We the researcher (and everything we have learned to date) are the refractive lens against which we process data. We willingly de-form / un-form / re-form our identities and backgrounds, values and assumptions, in order to learn a new way to be in the world. As we trace the complex, everyday lives of people, we seek

out these moments of personal, visceral confusion: where outcomes, explanations and choices do NOT make sense to us. The discomfort, dis-ease, confusion, anxiety, rage, joy – the very signals of our de-formability – become the template against which we seek to understand others.

Moreover, we are taught to "leave the field" when our new shape begins to harden – when we can predict how scenarios will unfold, when we can move through the community with ease, without calling attention to our outsider roots, when we understand nuances in language and expressions, when the underlying cultural patterns are clearer to us. When our new shape starts to resemble those of the community around us.

This requirement to be open to "de-formation" partly explains the long-standing bias against conducting research "at home," as well as the mandate for extended, immersive research. This embodied knowledge (Roberts 2020) has long been touted as the gold of ethnographic praxis. We seek to increase this friction from softness as a way to elucidate the logic of others' lives. By challenging our assumptions and perspectives (softening ourselves), and assuming a logic to others, we are forced to grapple with experiences until they make sense.

Yet this idea of being de-formable has rightly been challenged on two grounds. Many of those who had been historically marginalized from doing fieldwork – women, people with disabilities, people of color, people with families – argued that identities are never truly erasable: we remain defined ("hardened") by elements of who we are wherever we go (c.f., Scheper-Hughes 1995; McLaurin 2001; Rosaldo & Lamphere 1974). The idea that we can become members of radically different communities ignores issues of power, privilege, and opportunity. For many, our physicality, our relationships, our minds – the things that make us "us" – make it near-impossible to simply decide to be someone new.

Second, some of the things we experience in research can def-orm us in ways that are, frankly, not good. Many of the experiences we have during the course of fieldwork can be physically, emotionally and mentally damaging. From deaths and near-death experiences (c.f., Rosaldo 1989), to assaults and rapes (c.f., Kulick & Wilson 1995), to bearing witness to cultural practices that induce physical or psychic pain on others – ethnographies are replete with things we wished we'd never learned or experienced. While these may be more common in long-term projects, they do occur in the kinds of work we do as well.

To that end, I am excited and grateful to see less emphasis on self-de-formation as a necessary factor in "good" research. But in acknowledging the limits of softness, have we toggled too far toward hardness? Have we reduced the friction too much? I do have concerns when studies do not include some measure of participation – when the researchers themselves are not trying the thing they are asking of others. We know that teams who have included senior stakeholders in projects report greater success in helping them understand the experiences of others (Beers et al., 2011). I know timelines for our work are often very short, but including

space for experiential learning across the team will only improve outcomes. Creating spaces for softness, for de-formability, brings back the kinds of friction that help us approach another person's life from a place of respect and curiosity. It returns people to the status of informant (expert teaching us), not subject (a person that is discussed or dealt with). In these shifts, we regain the foundations that underlay the original mandate to willingly change ourselves, while letting go of the pretense of full acceptance and transformation.

Let us also remember that friction is a dynamic of two objects. While we've covered the relative deformability of the researcher, we need to consider the softness of those who participate in our projects.

One of the first tasks in fieldwork is to "soften" our informants. We begin with gatekeepers: we identify those with power and influence, and seek to leverage their credibility by aligning with them, having them validate and approve our presence. We then work to build rapport more broadly, to earn trust and respect, to gain the confidence of and be a confidant to the wider community.

Early ethnographies often portrayed communities as "hardened" – it was the anthropologist who was "de-formable" not our informants (c.f., Evans-Pritchard 1969 [1940]; Benedict 1946). But this was another ruse of the ancients. As we've argued for the past several decades, our work impacts communities in both subtle and significant ways (c.f., Tierney 2000). Those early ethnographies informed colonial policy toward their stolen lands, with detrimental impacts that reverberate still today. As more of us rise to positions of power and influence in global firms, our work carries the same ability to de-form communities, and must be approached with the care we now know to bring to those tasks.

At the interpersonal level, recognizing the differences in power, privilege, opportunity, resources, and relationships between us and our informants can help us better identify when and how people might be vulnerable to "softness." When we position ourselves as a friend, as we are taught to do, we take on obligations incumbent of friends, and these can be significant in many communities, especially those that are resource- or relationship-poor. When we express interest in other's stories, we commit ourselves to their version, not our script, and may find ourselves mistaken as a therapist, minister, or other trained professional (c.f, Bernius & Dietkus 2022). When we say we represent a company and are interested in the "pain points," there may be a very real expectation that we will do something to change that experience.

In all of these cases, we are "de-forming" the other person – we are changing them through who we purport to be. We are opening opportunities to them that did not exist prior to our engagement. We are changing the scope of what is possible, what is valuable, what is achievable. Just as we need to be mindful of what deformations we undertake, we need to be extra mindful of the deformations we catalyze in others. For us, fieldwork is, by definition, work. For our informants, we are intervening in their lives.

THE ROUGHNESS OF THE OBJECT AND SURFACE

In 2015, I spent several weeks in Seoul on a project about the praxis of femininity among South Korea's women culture-makers. It was an experience in cultivated and curated smoothness like I'd never experienced: impeccable homes, impeccable wardrobes, photo-perfect relationships, the right addresses, the absolute right wardrobe for any occasion, bodies that performed the cultural model of femininity. And yet, as we talked about their routines and their clothing, so much tension, friction, and roughness lay beneath it. Stories of being forced out of careers they loved, of dealing with in-laws, of husbands who worked shocking numbers of hours, of loneliness, of feeling confined within a very small, well-apportioned, gilded cage. On the surface, everything was perfect, yet they were unhappy in some profound ways. Did they need yet another $20,000 handbag in their arsenal – another thing to facilitate and extend the appearance of smoothness? Or did they need a systemic change that allowed them to live fuller lives, to have moments of joy?

In the ethnographic encounter, the "roughness" of an object and surface are best understood as the revealed complexity of researchers and the community members. By "revealed complexity," I mean the willingness of each party to share the fragments, frustrations, and challenges in their own lives – the experiences that have made us a bit prickly. If we borrow Geertz's (1973) metaphor of culture as "webs of significance," roughness is best visualized as the places where the web may be torn: where the stories and pathways of our lives fail to connect, to make sense, to flow seamlessly to the next juncture. Roughness is our willingness to demonstrate or discuss our moral quandaries, our social concerns, our fears, and our general points of difference. These kinds of complexities are the texture – the roughness – of all human lives. To borrow from Goffman (1956), this is the willingness to reveal the "backstage" person beyond the slick, rehearsed "front stage" persona we curate. This applies equally to researchers and informants.

In long-term, place-based fieldwork projects, our roughness as researchers often emerges because we live right there, with everyone, and we show these edges by default of our humanness. Some of these frictions result simply from our habitus (Bourdieu 1972) – from the ways in which we embody power, status, wealth, and other axes of identity. By default of having human bodies, we come to occupy certain social categories within our work, whether these align to our own held identities or not. Other roughness results from being fallible. On difficult days, when we are overwhelmed from navigating systems that are confusing and new, when we are mentally exhausted from speaking new languages all day, or when we just miss the familiar. As our research progresses, new kinds of roughness appear as we develop trustworthiness and rapport with different informants. We share our lives, our joys, our edges. We build friend-like relationships.

In digital ethnographic research, where we live behind screens and screeners, we can opt to reveal little to nothing about ourselves (c.f., Walther 2007; Tufecki 2008). We can appear as opaque and slick as the technology that mediates the relationship. We may never reveal our name, our location, or the kinds of quirky facts that might enable people to create an accurate mental model of who we are. There is a freedom and possibility in this for many researchers. Elements of my embodied identity that I cannot (and will not) hide in person can be backgrounded during digital research. This gives me the ability to function almost as a disembodied mind, or as another social persona, laser-focused on the topic at hand, but not entirely human. In many ways, this enables us to move much more quickly through research because we are not actually implicated in the process. We are not a source of friction, of conversation, of slowing down and chatting. While many disciplines practice this as a way of mitigating bias, it can induce unknown sources of bias into our research should people manufacture stories about who we are and why we are asking certain questions.

Among our informants, roughness similarly emerges in a few different ways. Just as elements of our lives may not connect smoothly, so too do we find breaks and ruptures in theirs. In fact, the Manchester School focused entirely on investigating these ragged edges – for in pursuing the breaks, you understand both the systems that create them and the ideals that inform them (c.f., Gluckman 1955; Colson 1953). One of the ostensible perks of a researcher's "outsider" status is that it enabled informants to be more direct about the roughness without fear of social judgment. However, in our global world, we need be mindful that we are never really "outsiders," and poking at someone's ragged edges may be costly.

At one level, we pursue and explore the roughness in others' lives. This may come about in screeners, where we require people to acknowledge fragmentation as a requirement of participation. We see this in screeners for things like medical conditions, economic strains, systems involvements, family status, and so forth. Simply to participate, we need people to own their roughness. This can also occur by default of studying certain topics, where our questions will deliberately probe areas of known complexity, such as household finances, wellbeing, parenting and relationship dynamics, power relationships in organizations, and a multitude of topics that dive into social obligations and personal identity. As noted above, it was the driving force in a project that was ostensibly about luxury fashion.

People may share their roughness because we've acquired a role of confidant, friend, or something else other than "researcher." For those who work in organizational ethnography, this often happens as teams may forget your real reason for being there; or alternatively, as teams realize the power of your role as official conduit for all things problematic (c.f., Lovejoy & Lucas 2020).

It can, at times, be induced more quickly as a factor of anonymity. In surveys or online forums, when participants feel secure that they cannot be traced, researchers can glean elements of this complexity through the careful crafting of

questions that invite people to share this richness. In a recent online project my team conducted on people's experiences of their communities, we heard snippets about discrimination and safety concerns, as well as the unexpected joys of small acts from strangers. So we know it's there. However, our ability to then follow these threads to understand more, or to link them with other elements of community life, is significantly restricted.

Just as we can hide in digital studies, so can participants. We may know little to nothing about them beyond what they are asked to share in a project. In fact, they may opt to be someone entirely different in their digital lives (c.f., Glazer et al., 2021). While many recruiting platforms go to great lengths to verify identities, it is not always so straightforward. While less than ideal from a research standpoint, this kind of seamless facade allows people a momentary respite from the roughness of embodied life, and allows them to imagine another existence altogether – one in which they are valuable and important to someone, namely, to us as researchers. At a practical level, it's a transaction – we pay them for their time. And for many, this income may be the difference between eating and not eating, or talking to someone during the day versus not. So while we may vent and rage about it, we should rightly be asking about the commodification of insights and the forces that drive some people to this path. But to study that, we need more roughness.

The more we can be attentive of our requests and requirements for exposure, the more we can understand where and how and why we are asking for it. In the end, what we ask of participants should in some way inform how we will use that information. Delving into sensitive topics with no intention of using the stories for some positive shift creates unnecessary friction in lives that are complicated. Yet in seeking out the roughness in other's lives, we need to be careful to avoid any claims to being able to solve all of these rough patches. While applied anthropology is the translation of meaning into action, there remain limits on what we can and should do (c.f., Bernius & Dietkus 2022). This is particularly true when the source of challenge lies beyond our scope of our mandate – which is so often the case for good ethnographers. In tracing the fragmented and fraying "webs of significance," we will inevitably encounter systemic and historical injustices.

STATIC VERSUS MOVING OBJECTS

It takes more energy to move an object from a state of rest than to continue the movement of an object once it is going. In short, static objects have a higher coefficient of friction than those already in motion. That said, objects in motion tend to stay in motion, hence it can be much more difficult to stop them.

As we think about this in research, we can conceptualize it as leveraging what is already known and moving, versus starting anew. There are four primary ways to do this. First, tapping into what is known about a community, a topic, and a human challenge enables you to identify key themes, perceive areas of roughness, and see

opportunity spaces. The Theory Death-Match (Dautcher et al., 2013) is one clever way to achieve this, as is the Frames format created by Stripe Partners (https://www.stripepartners.com/viewpoints/algorithmic-everyday/). However, leaning into popular culture can be similarly productive (Hanover 2022). All are productive ways of extending the work of others into new contexts.

Additionally, extending learnings across projects not only helps bootstrap new efforts, but prove additional return on investment for those who sponsor our work. Reviewing previous studies before instigating new work helps by reducing the time requirements (and possibly the costs) of projects (c.f,, Guth 2022). For example, we connected insights from projects on back-to-school shopping and shopping for home appliances by considering the status implications of purchases. Similarly, we linked work on shame from a healthcare project to a new effort on mitigating shame among bankers and brokerage firms after the financial meltdown in the 2010s. By linking themes, we could begin projects from a known terrain, even if we shifted them past those foundations.

A related tactic is to learn across disciplines, silos and organizations. This helps us ask more novel questions, to pursue topics from a different perspective, and to "crowdsource" critical information that may be held as "tacit knowledge" from those who know. However, as Guth (2022) also noted, this can raise its own sources of friction due to who we are in these roles. As she advised, building strong relationships with key informants and gatekeepers can enable the smoother flow of information across silos and disciplines.

In the end, this may also explain the preference among many academic anthropologists to return to their fieldsite throughout their career: it is easier to extend past studies and relationships than it is to continuously build new ones. After years of work, we have well-established connections to people, places, and subjects. We speak local languages. It is much easier to keep going forward on these paths, especially as time becomes more limited in our unfolding careers. While rare in industry research, this could be accomplished with longitudinal panels, where the same cohort of people agree to participate in a wide range of research in order to ladder and bolster information across topic spaces (c.f., USC, RAND). It would enable connective themes akin to what is achieved in place-based long-term projects, but at a wider scale.

For all the benefits of keeping things moving, the risk is that these relationships can similarly be difficult to stop. While fieldwork is work, our blurry relationships can create scenarios where we have become something other than the research, as discussed above. Recognizing the impact of this on ourselves and our teams, as well as on our participants, is an important element of sustainable work. Establishing clear boundaries around roles, or creating rituals to end longer-term projects, can help teams and informants to shift relationships into greater stasis or end them as needed. Making space in debriefing work to discuss these closures also

provides teams with language and structure for elements of the project that may want to linger.

As we consider stasis and movement among the lives of our informants, it may be more productive to think in terms of interruptions and continuity. Part of the logic of place-based long-term projects as participant-observers is that our research falls into the flow of everyday events (cf., Malinowski 1922). It is not a distinct moment, merely part of the ongoing rhythm of lives. While there is a significant effort transitioning from stasis to movement as we launch a project, this tends to encompass most of the shift. Yes, there are always new introductions and new directions, but these often come as introductions (leveraging others' relationships), or by default of our greater incorporation into daily activities.

In the more typical organizational research or in many genres of UX and Consumer Insights research, we are asking people to stop the ongoing flow of their lives to make space for us. We are shifting them from a process of movement to one of stasis, asking them to pause, to reflect, to share, to advise, to demonstrate. Even when this may be appreciated, it is still a source of friction. Understanding when and how we make these requests may ease that, and potentially increase collaboration. Additionally, we should consider the nature of the disruption. When our work is close to the events happening in someone's life, it may cause less interruption to their flow. However, when our topics are further away – for example, exploring something from their past or future – we may need to consider the impact of this distraction on their lives.

THE NORMAL FORCE OF FRICTION

The normal force of friction reflects the density of the matter in objects, and the gravitational pull between them. The denser two objects are, the stronger the normal force. Similarly, gravitational pull reflects the distance between objects: the closer together they are, the stronger the pull. We are better positioned to think of the normal force as augmenting the other factors that create friction: it amplifies or reduces roughness, deformability and movement. For example, deformable dense objects will create more friction; distant rough objects will create less friction

How might we think about this force in our research? I'd like to suggest two parallels to density and gravitational pull. Density might be properly conceived of as significance: the greater weight and importance of a topic or project, the greater the friction we will create and encounter. For example, in a project about the financial lives of rideshare drivers (Smith 2022), the significance of the topic was so intense for participants that they extended interviews, provided meticulous tracking of their money and expenses, and asked to prolong the study. Their financial state – which was typically quite precarious – was of such importance that when provided an opportunity to discuss it, they unloaded years of frustrations, fears, challenges, and

dreams. In this case, the density of the topic space enhanced the roughness of their lives.

Among researchers, often when we are on projects that are of critical strategic importance to our clients or organizations, this can enhance other frictions. For example, I was a participant in a project years ago that involved the alignment of internal resources to new strategic priorities. Listening to my colleagues discuss systems that had long frustrated them, I was intrigued that when asked about their work, their language changed to be almost hyperbolic – *essential, critical, only one who can do this, vital*. In creating a scenario in which people had to defend their value within an organization, the leadership simply enhanced the deformability of the teams. People quickly changed how they talked about their work in line with the new vision, shape-shifting in order to stay relevant.

In our work, attending to how "density" might create unexpected or unwanted bias in the outcomes is an important step in planning. Topics that are particularly fraught for a given community might open a floodgate of participation, and we should consider both how to honor and respect this opportunity, while similarly protecting ourselves and our teams as we may be quickly overwhelmed with materials. When our projects impact organizational dynamics, ensuring support from relevant stakeholders, and thinking differently about how to conceptualize the issue will ease some of the impact we create for others and ultimately for ourselves.

When it comes to gravitational pull, this is a measure of closeness. For our purposes, I'll frame this as "proximity in time." Specifically, gravitational pull refers to the distance between researchers and their deadlines. Whereas time is the great gift of long-term place-based work, it is a precious resource in more applied contexts. To that end, we may exacerbate smoothness in an effort to focus studies to "manageable scope," leaving out elements of people's lives that will seem extraneous, confusing, or tangential. Similarly, extending projects can exacerbate friction dynamics inherent in the underlying processes. In a project we led on the role of kitchen items in the running of a household (Sieck 2013), we exacerbated the movement/stasis dynamic our participants experienced by repeatedly inducing interruptions in their lives. Over a week-long project in which we took away multiple items from households (trash bags, storage containers, foil, etc.), they reported ever-greater challenges (friction) as the days wore on and they had to continually re-think how to navigate life in the absence of certain products.

While we often have little control over the deadlines that drive our work, we can be mindful about how research timeframes impact our methods, and our relationships with participants. Articulating the choices we make regarding smoothness/roughness, or de-formability, become ever more critical in providing the right context for interpreting the results. Similarly, longer projects are not inherently better if they do not capitalize on the opportunities for richer work.

RUNNING THE EQUATION

As noted by physicists, there is no movement without friction. In our world, that means there are no insights, no strategies, no futuring, no careers – nothing we do as ethnographers is possible without friction. Which also means that we must not be glib about the toll it can take on us and our informants. While necessary, we don't need to exacerbate it through thoughtlessness or carelessness.

With that in mind, let's return to the equation and reconsider how we might better balance it on behalf of ourselves, our teams, and our participants.

Friction = (deformability x roughness x movement) x (topic density x speed)

As you plan projects, this equation can help you consider the sources of friction which drive the work forward. The equation should be run for both the research teams, as well as those who will be our participants. There are no insights without friction, so consider which sources are necessary and productive, and how to corral those toward the good of the projects. As for others, the goal is not to exclude people, but to consider how their lives contribute to friction, and then determine when and if it can be balanced or managed.

There is no single answer for every project or every team. This is a conversation that must happen across the researchers to consider what level of friction is sustainable on any single project and across a portfolio of projects. Some elements will not be flexible – for example, projects on financial precarity or grave health conditions will inevitably create significant roughness and density. But knowing that, you can balance with more experienced researchers (potentially less deformable), with more time (reducing force), and with leveraging previous projects or prior research (enhancing movement).

In the end, I have returned in my head many times to each project where I have become deeply entangled in the work, assessing and reassessing the friction that binds us. In hindsight, I would have done some of these differently. While not a panacea nor a one-size-fits all, I believe this equation helps us consider when our requests are unreasonable, and helps us attend to these factors and forces as much as possible. In this way, at the very least we can strive to avoid owing reparations to others or ourselves for thoughtless and ill-planned work.

NOTES

My first and deepest gratitude goes to those who have become entangled in my life – as colleagues, participants, mentors and others. Had I conceived of this equation at the onset of my research career, I do think some of the frictions that have defined our paths might have been different. I owe an enormous thanks to Rachel Singh, whose reading of a previous version of this paper inspired me to dig into physics and the equation for friction. And to Sophie Goodman, our session curator, who read many versions of this, in all its roughness and deformability, and helped find the good within it.

Finally, to my team at TRI who continue on this research journey with me. All weaknesses and challenges remain mine.

ABOUT THE AUTHOR

Kate Sieck is an anthropologist who has spent nearly 3 decades working with people on a wide range of projects. She currently serves as the Director of the Harmonious Communities Department at Toyota Research Institute.

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What You Find When You Find No One

Finding the Light out of Darkness

LAURA JANISSE, *Bayer Pharmaceuticals*
FRANCES DiMARE DAILEY, *Bayer Pharmaceuticals*

Photograph © Octavio Aburto

In the past year, our team encountered unexpected friction when recruiting efforts resulted in zero participants for two different user populations on two health projects. For one project, we were searching for women experiencing pain related to their perimenopause. And for the other project, we were searching for people who were in early stages of their chronic kidney disease. We hadn't experienced finding no one before. We were forced to pause and question our approach and work. It all felt heavy – zero recruits, the need to find direction for what to do next, and ability to discover the insight for why this happened. Finding no one had critical design and business impact for our team and cross-functional partners.

Join us as we share how we emerged from the darkness of zero, how we found motivation to push through and unpack the friction, and how we ended up in a better position because of zero. We hope our story helps the community see friction as a gift when they encounter it in the future, and that it inspires us, as research practitioners, to question what blind spots might exist within our practice and work. Keywords: digital health, recruiting

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Frances DiMare Dailey uses strategy and design research to solve for large scale needs within healthcare. She has led experience innovation projects, invented the first flushable pregnancy test, and developed software products for the life sciences industry. Today she develops new digital product strategies for patients from within Bayer.

Ethnographic Film

The perspectives of filmmakers and the multi-sensory nature of the medium creates unique kinds of connections. This session invites reflection and critical discussion about how these works are constructed and interpreted, and how they create unique ethnographic artifacts and understanding.

Discussants: Ruchika Muchhala, *Ipsos*; Charley Scull, *Facebook*

Cash as a Good

LESE AWODIYA, *Ekuule*

Nigeria is primarily a cash economy.

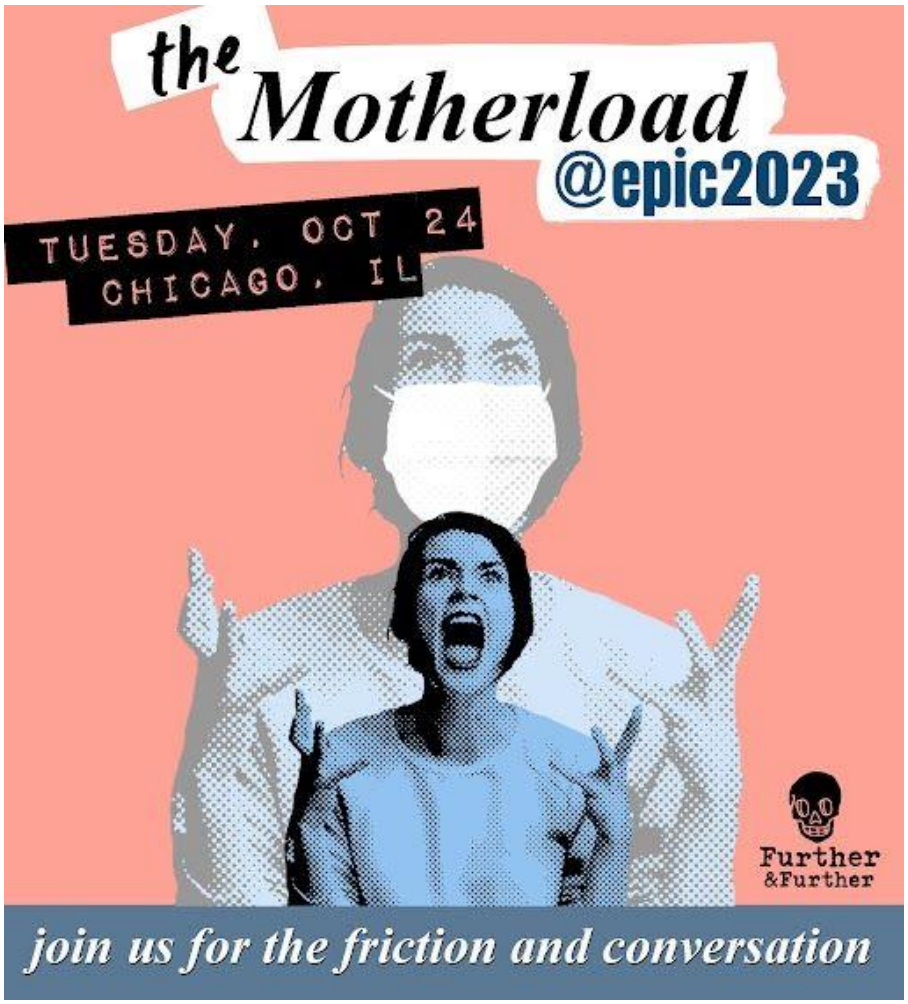
In 2012, the government announced a cashless policy to see the country move towards a cashless future. Over the next few years, they rolled out cashless initiatives like POS systems, which the people gradually embraced and adopted. Fast forward to 2022. The CBN governor suddenly announced the redesign of the three highest currency notes. He gave a short timeline for the old notes to be taken out of circulation, launching the country into unprecedented chaos.

This film explores the narratives of Nigerians in Lagos State as they go through the crisis. A compelling thesis of the dynamics fueling the situation emerges as they share their experiences in interviews and through the researcher's observations captured in videos and photographs. Cash, to Nigerians, is a tool to purchase trust, loyalty and power. The absence of cash in an economy without trust capital led to the social and economic breakdown, especially in the crucial lead-up to the nation's 2023 political elections.

Cash as a Good is an apologetically humanized view of the crisis. Where the focus is often predominantly on the economic repercussions, the film takes an empathetic ethnographic approach to show the interplay between cash, trust, and institutions. The result is a holistic perspective on the crisis and a high-level commentary on Nigerian money beliefs.

The Motherload

BRIAN FLANNERY, *Further&Further*
EVE EJSMONT, *Further&Further*
BRANDEN MAYER, *Further&Further*



SYNOPSIS

The Motherload is a look at the realities of contemporary motherhood in the time of post-pandemic pressures, uncertainty and variable support.

Through our client commissioned work of late, we couldn't help but notice the theme of mothers, parents, and families struggling just to find a semblance of normalcy and consistency amidst such economic, educational and societal change.

So we decided to explore the topic on our own.

We chose to focus on motherhood, as opposed to parenting, because we wanted to explore the friction that women face between modern expectations, and persistent historical constraints to the role.

We spoke with mothers and families, across North America and Europe, as well as a number of experts.

We intended to meet in person, and quickly realized with the onset of the Omicron variant in the early stages of planning, that the safe and ethical approach would be to conduct all interviews digitally.

But this created the dilemma of building rapport, gaining trust, and capturing truly immersive stories around such sensitive and emotional subject matter. The Motherload turned out to be a universal story told through very individual experiences, with a result that's bound to hit anyone in the feels, whether you've lived through parenthood or not.

CONTEXT

This film was forged in friction.

Asking busy, stressed, scared, exhausted mothers to make time for us, to open their homes and hearts to us was a delicate and sensitive task to say the least.

We shifted our production timeline multiple times, just to ensure that we weren't rushing our participating mothers arbitrarily. No better way to understand their reality than to have to shift our expectations to their life.

We realized that we couldn't use traditional data collection tools. What mother has the interest or ability to log onto a computer to tell us about the midnight blowout she just changed?

So we created the mom vent line. We created a good old fashioned phone number that went straight to voicemail. A resource for our participating mothers to call in any time night or day, to vent, kvetch, confide and cathart. We didn't know if it would work, but within days we were awash in calls. It became clear that it had been a long time since our mothers had not been offered an open ear, or a process for anything that acknowledged the constraints of their day.

The purpose of this film, aside from the value of the stories shared, was to demonstrate the achievable levels of intimacy and honesty without ever meeting someone face to face.

It was originally meant to be researched and shot like a traditional in-person ethnography and documentary. But in the absence of in-person interaction and conversation, we had to reduce friction in the process wherever we could, while reassuring our subjects that we were committed to receiving the full breadth of the friction of their lives, without asking them to simplify or sanitize their day to day.

It meant rescheduling when they needed to. And keeping the interview going when the realities of parenting were literally climbing over their shoulders.

It demonstrates the essential nature of researchers and filmmakers having flexibility, emotional availability, and a clear humility and humanity for participants to see.

And we would be remiss if we did not acknowledge the skill and commitment of the moms and families in The Motherload to capture their own story. They are the cinematographers of this film. They documented the things, moments, and experiences that mattered, and made it possible bringing their narratives to life in film.

This is a film that we organized, facilitated and edited, but was ultimately visually captured by the very people that make it so special. That's why the friction, and their incredible strength and power to move through it, are so memorable and impactful to anyone who watches.

The film was shot entirely by participants of the film.

We believe that this film is a special example of the importance of network-based recruiting, flexible research methods, and the ability to achieve genuine intimacy and trust through both, in the absence of face-to-face interaction.

By showing people that the constructs of the research were built around their time, their needs, their emotional constraints, only then could we ask people to fully immerse themselves in the project and ask them to spend time thinking about and executing the many shots and moments that make up the film.

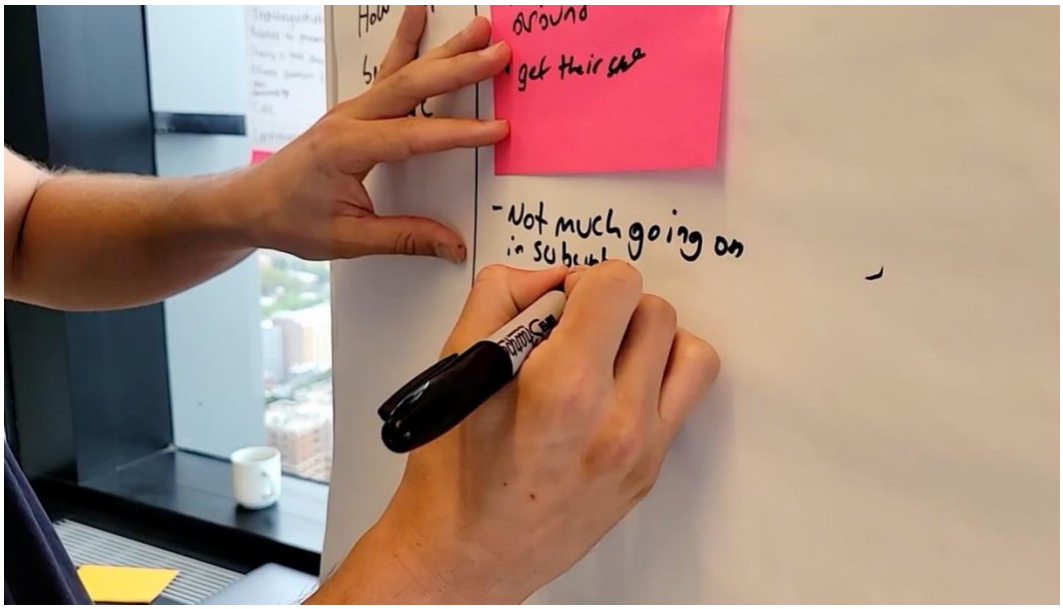
We believe that by the end of the 14+minutes, the viewer will forget that all interviews were zoom based, with phone-shot support footage.

We hope you're touched by their stories and enjoy watching.

Showing and Telling

Visual Ethnography between Immersion and Persuasion

TODD CARMODY, Ge*mic*
REBEKAH PARK, *Gemic*



This film explores the constraints that working in industry places on visual ethnographers. It is a truism that visual media like film are more immersive than textual media. If you want to convey a sense of what it is like to be there, we typically assume, you're better off showing than telling. For visual ethnographers working in industry, however, things are not so simple. Clients and stakeholders may want to be immersed in a particular experience or phenomenon. But the ethnographer's job is ultimately to guide these viewers toward a desired interpretation or takeaway. In the industry context, in other words, there can be no showing without telling – and the danger is in letting the former overpower the latter. This film explores this seeming contradiction from the ethnographer's perspective, focusing on key moments of friction between showing and telling, immersion and persuasion, experience and argument.

Mosaic Atlas

Mapping Inclusive Arts Hubs

JAN ENGLISH-LUECK, San José State University
KERRY ROHRMEIER, Kerry Rohrmeier Planning and Policy
PATRICK PADIERNOS, San José State University

Caption: Photograph of the SoFA (South of First San José) Pocket Park and demonstration garden, affiliated with the San José Museum of Quilts and Textiles and Veggielution. Courtesy of Patrick Padiernos/Mitchell Tran.

The Mosaic Atlas[1] is the brainchild of Mosaic America, initiated by a group of immigrant women in an organization that supports cultural arts who wanted to solve the problem they were experiencing—finding communities, venues, and collaborators—by creating a freely available digital atlas. They reached out to San José State University and found us—applied anthropologists, geographers, and urban planners. Together we co-created the ArcGIS based Mosaic Atlas. We all have different perceptions of what counts as data, how that should be presented and handled, and the ways in which we work with communities. We needed to create databases, points on a map, and narrative hooks that explored neighborhoods and networks more deeply. The organizations varied from those advocating for a specific

cultural community, to those who wanted to somehow decolonize public art. Others saw art as the way to reach cultural communities for other purposes—to provide services for education, health or housing.

We encountered frictions—in our interdisciplinary teams, among our organizational collaborators, and in the communities we were mapping. We are an interdisciplinary team. We created a video to introduce the project and explore the frictions, from the moments of its inception by Mosaic America to the team's investigation into the use cases for the tools. The map lists points and short journalistic descriptions, and contains curated StoryMaps that can tell a deeper story, such as Alexandra Garcia's StoryMap of the Muwekma Ohlone. We did that document in partnership with the New Museum of Los Gatos and the tribe itself. The StoryMap was done *with* the Muwekma—they steered the direction of map—to include places of cultural significance, including sites of public art and performance. They helped select the people to be interviewed, and in extended discussions, revealed that they wanted to tell a story, not just of cultural erasure, but of cultural reclamation, including their fight for federal recognition. On the StoryMaps people get to hear and read first person narratives that speak to powerful ideas—noting the power and the frictions of such deeply diverse multicultural regions.

Each community we worked with has a similar passion and story to tell. We only use a tiny fraction of the material shared with us, and are working with San José State University's Martin Luther King Jr. library to archive all digital recordings, transcripts, and photographs to capture the thriving cultural art scene of the Bay Area in the early 2020s. The project is ongoing, and partially funded by Hewlett Foundation and the Wallace Foundation.

NOTES

Mosaic Atlas. 2023. Mosaic Atlas: Cultivating Equity, Inclusion, and Belonging. https://mosaicatlas.org/