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Identifying and transforming sites of power in collaborative community-based research

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ABSTRACT

For this dissertation, I analyzed collaboration practices and power structures within three community-based participatory research (CBPR) studies I conducted for my Ph.D. I ask: *1) How do dominant power structures, epistemologies, and narratives manifest in HCI research and praxis? 2) How can we structure research to support our community partners' goals while resisting dominating and extractive practices in academic research?* To respond to these questions, I conducted member checking interviews with my collaborators and a duo-ethnography with my dissertation advisor, Dr. Sheena Erete, about our experiences in the studies as a Black female professor and a white female graduate student. I grounded my findings in Black feminist thought [38, 39, 175] by employing the intersectional analysis method [66]. I draw from literature in sociology and critical studies [13, 121, 137, 184], critical analyses of methods [18, 114, 168], transformative justice [16, 111, 147], and assets-based community development and design [54, 115, 186, 191].

Through my intersectional analysis, I identified how systems of power and disciplinary norms influenced Dr. Erete's and my decisions about how to structure our collaborations and organize our time and labor. These decisions impacted the distribution of benefit and harm within our collaborations. Systems of power also manifested in cultural narratives imbued within the studies; such narratives informed our methods and interactions with our collaborators and community members. I organize my findings into five *saturated sites of power* [39, 66] within CBPR. These are sites where intersecting systems of power acutely impact collaborators' experiences and study outcomes. To support researchers in developing a non-extractive and mutually beneficial CBPR practice, I offer a set of reflexive prompts that address three themes: 1) evaluating researchers' capacity for the work; 2) distributing resources through CBPR; and 3) using narratives as a reflexive tool. This dissertation extends critical HCI literature [7, 46, 61, 62, 87, 118, 148] and contributes recommendations that researchers can use to intentionally design studies that mitigate harm and advance community-defined goals.

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CHAPTER 1. INTRODUCTION

> *As people push against, step away from, and shift the terms of their participation in power relations, the shape of power relations changes for everyone.* Patricia Hill Collins [38, p.293]

Throughout my Ph.D. program, I have had the opportunity to collaborate with brilliant community leaders from the south and west sides of Chicago. My experiences with them have transformed the way I understand the world and the potential for collaborative research to either perpetuate or begin to dismantle the harmful systems of power that produce social disparities. Over the course of my Ph.D., Dr. Sheena Erete (my faculty advisor) and I designed and implemented three community-based participatory research (CBPR) studies [52, 54, 69]. The ways in which we designed the studies changed over our six years together, which was in part due to our conversations about aspects of the collaborations relating to power and racial dynamics.

Being a white woman working in predominantly Black communities, I was aware that my interactions with community members were racialized, and I was concerned that I might cause harm through my work. Dr. Erete and I began having conversations about race after the first project. Our conversations started one day when we had a rare break that enabled us to step back and reflect on the work we had done thus far and to talk about our long-term plans. It was my first opportunity to bring up the conflict I felt about the study we had just done, in which we held two workshops in two different predominantly Black and Latinx[1] communities with residents to hear their priorities and concerns for technologies in their communities (Case Study 1).

We planned the study with a leader from a civic organization associated with the City of Chicago, who had relationships in the two communities that hosted the workshops. Dr. Erete led the activities, while I either took field notes or buzzed around asking people to fill out IRB consent forms, taking photographs of consent forms, and distributing worksheets or other materials

[1] I use the gender-neutral term Latinx to be inclusive of gender non-binary and nonconforming folks and communities but acknowledge that it is not a term that all Latino/a people use.

for the activities. Although we had been welcomed by the host organizations, and those attending came voluntarily (perhaps incentivized by the food we offered), I sensed my presence was an intrusion into Black safe spaces (particularly in the workshop we held at a predominately Black church). I questioned my role in doing this type of research and began reflecting on the research model of dropping into a community to gather data, only to return with a report or perhaps another researcher-defined contribution.

Raising these questions regarding race and our research practice led to Dr. Erete sharing her experiences of censoring and "tone policing" herself in academic writing and settings to protect her academic career and reputation; she was aware of how being viewed as an "angry Black woman" could discredit herself and her work. These conversations began in 2016, before Dr. Erete had tenure and therefore was more vulnerable professionally and before the racial reckoning in 2020 forced interpersonal and institutional racism into the HCI dialogue [24, 67, 88]. In the following years, we continued our reflexive conversations about race and power dynamics between researchers, collaborators, and community participants in CBPR.

We were not alone in having these reflexive conversations our work with communities or the ways in systems of power (e.g., race, gender, class, disability) manifest in our work. There is much HCI literature that analyzes CBPR methods and practices in the context of racialized, classed, and otherwise minoritized communities in the U.S. [56, 62, 87, 120, 148]. Critical HCI is a growing body of literature addressing questions about how our interactions with communities are framed within hierarchical power arrangements [7, 61, 62, 87, 118]. Researchers have confronted how histories of research injustice and institutional harm create a foundation of distrust toward academic researchers that affect the ways our methods are received by community members [87]. This body of work has begun to interrogate the ways in which we structure our relationships with community collaborators and the resulting outcomes from the work [41, 62, 118]. As Dourish et al. ask, "What might an HCI be whose primary commitment to the communities it serves overrides a commitment to conventional research production" [61, p.8]? My dissertation responds to Dourish et al. with perspectives from community collaborators, which have so far been missing from the

critical HCI discourse. As of yet, there has not been a systematic study to understand how systems of power drive the extractive and harmful practices in CBPR that prior work has identified. I contribute an intersectional analysis of power in CBPR and offer insights from my collaborators about how we can co-create mutually beneficial research collaborations.

1.1 Research Questions

By understanding how systems of power operate through research, we can organize our studies to resist dominating, extractive power paradigms that can create an "epistemic burden" (as described by Pierre, et al., 2021 [148]) for minoritized communities who take part in CBPR. Through the following research questions, I explore how to design research models and practices that minimize harm and align the benefits that researchers and community collaborators gain from the work:

1. How do dominant power structures, epistemologies, and narratives manifest in HCI research and praxis?

2. How can we structure research to support our community partners' work while resisting dominating and extractive practices in academic research?

To address these questions, I hired an external evaluator to conduct interviews with six of my past community partners. Through the interviews, I learned how they experienced our collaboration, what they think about power in CBPR, and how they recommend structuring and conducting collaborative research. I analyzed power in the three case studies using the intersectional analysis method [66]. The systems of power I focus on are capitalism and race, which cannot be disentangled from one another because capitalism depends on racial exploitation (as expressed by the term "racial capitalism" [79, 129, 156]). I also explore how gender impacted Dr. Erete's and my experiences in the research and the ways in which gendered narratives emerged from our interviews with our community partners. To incorporate our situated experiences with power and cultural narratives into the findings, I conducted a duo ethnography [139] with Dr. Erete through the process of writing my dissertation. Based on this analysis and the recommendations from my

collaborators, I identified five *saturated sites of power* [39, 66] in CBPR and developed a series of reflexive questions to support researchers in co-creating mutually beneficial studies that prefigure [7] more just power relations.

1.2 Intersectionality as a Lens

We all unconsciously order the world and create mental models that normalize the "status quo," even if that includes social inequities and state violence—while cultural narratives work to justify such dissonances. These narratives and paradigms obscure how systems of power have structured the world and our social relations, which effectively suppresses resistance to violent power structures [39, 146]. It is therefore necessary to understand the interplay between epistemology, paradigms, and methodology to build socially just CBPR practices. Patricia Hill Collins explains the importance of analyzing epistemology and paradigmatic thinking in research examining intersectional systems of power:

> *Far from being the apolitical study of truth, epistemology points to the ways in which power relations shape who is believed and why. [..] In contrast to epistemologies, paradigms encompass interpretive frameworks such as intersectionality that are used to explain social phenomena. Methodology refers to the broad principles of how to conduct research and how interpretive paradigms are applied. The level of epistemology is important because it determines which questions merit investigation, which interpretive frameworks will be used to analyze findings, and to what use any ensuing knowledge will be put.* [39, p.270]

As a critical theory, intersectionality challenges academic epistemic gatekeeping, which is when knowledge that challenges dominant western epistemology is shut out from the academe [38–40]. Incorporating non-academic knowledge (e.g., that gained from lived expertise or grassroots research [99]) into research methods requires attention to sites in the research process where power is contested and enacted. As Collins (2019) states, "Collaboration, iteration, and reflexivity within any community of inquiry must grapple with the effects of differences in power and how social inequalities shape internal group processes" [39, p. 151]. The aim of my dissertation is to

identify the sites where power is contested in collaborative research so that academic and community researchers can intentionally structure their studies to counter dominating power paradigms.

Erete, Rankin, and Thomas [66] draw from Collins' intersectional theory [39, 40] to develop the *intersectional analysis* method as a way to create knowledge grounded in Black feminist thought (BFT) [38, 39, 66, 175]. The method embeds Black women's perspectives, knowledge, and experiences into research findings and academic discourse—thwarting the tendency for Black women's contributions to get "whitewashed" and appropriated [66]. It is a tool for analyzing and producing resistant knowledge projects. Using intersectional analysis, I examine how converging systems of power, *saturated sites of power*[2] [66, 154], in collaborative research can acutely impact the research outcomes, the people involved, and their relationships.

My analysis of power in CBPR engagements with racialized communities in the U.S. extends existing intersectional work in HCI [7, 65, 95, 140, 152, 162, 179] by beginning to explore how systems of power (e.g., white supremacy, capitalism, cishetero patriarchy, ableism, religion) are baked into our cultural narratives, institutions, and research methods. Without this awareness, we will certainly perpetuate oppressive systems through our research and the technologies we design [12, 140, 181].

1.3 Contributions

> *Epistemic burden gives a name to the collective issues of knowledge extraction and uneven power dynamics that place a burden on communities for participating in this type of research [..] the lens of epistemic burden encourages a sensitivity to the power dynamics of resource and knowledge flows and the clash in fundamental values between community organizations and academic and industry/design researchers, in order to encourage researchers to call into question our approaches to participatory design research. Epistemic burden illuminates what community members are being asked to do within these research dynamics, how it serves or doesn't serve them, and how it aligns or doesn't align with their goals.* [p. 2] [148]

With this dissertation, I join conversations in HCI about how systems of power manifest in

[2]Erete, Rankin, and Thomas use the term *saturated sites of violence*, which combines Collins' *saturated sites of power* and Dotson's *epistemic violence* [60] to highlight the epistemic and institutional harm Black women experience at the intersections of systems of power [60, 66, 154].

our work, causing epistemic burden, and how we can counter such structures through our research [46, 67, 86, 148]. HCI scholars have contributed valuable reflections on their CBPR case studies from their own points of view (e.g., [61, 74, 87, 118, 148]). However, HCI has yet to explore questions about power, harm, and benefit in CBPR studies *from the perspectives of community partners*. I begin to address this gap by incorporating member-checking into my dissertation. Through my intersectional analysis of my collaborators' interviews, I share the saturated sites of power within research studies that they identified as having an acute impact on their experiences of the collaboration and the benefits (or lack thereof) that their community received from it. Taking up the tradition of offering reflexive prompts [7, 61]), I offer a set of questions to guide researchers in building CBPR practices that are sensitive to present and historic power dynamics. Additionally, in response to scholarship that has pointed to the need to understand how researchers counter power structures in CBPR [110], I highlight our acts of resistance throughout my findings.

Much of the reflexive literature on CBPR cites structural factors as driving the trend of shorter-term extractive CBPR that usually does not produce significant contributions for the partnering community. Structural factors include publication timelines, funding timelines, funders requiring technologic outputs, curricular requirements, peer review, requirements for novelty, and neoliberal university structures [61, 62, 87, 118, 120, 148]. Although prior studies have noted discrete structures and practices that cause epistemic burden, they have yet to systematically examine how systems of power facilitate extractive research practices. I address this gap by providing an intersectional analysis of how systems of power influence how researchers design and implement collaborative studies, and what the cascading effects of these decisions are for community collaborators.

In terms of CBPR practice, HCI literature has identified a pattern of collaborative research causing epistemic burden because often the researchers do not frame the work *with* their community partners [41, 74, 87, 118, 148]. HCI therefore needs examples of researchers and community members co-designing studies where their interests and resources align, enabling them to produce meaningful outcomes for both parties. My dissertation addresses this gap by providing two exam-

ples of longer-term research that our collaborators *initiated* and co-designed with us (Case Studies 2 and 3). I examine how we organized power in these studies, which resulted in stronger collaborative relationships and more effective outcomes that leveraged the communities' assets [102, 115, 186, 189] as compared to our researcher-defined, short-term CBPR study (Case Study 1).

The participation gap in collaborative research in HCI extends through the knowledge production phase. Cooper et al. conducted a systemic literature review of CBPR and found few, if any, studies that incorporated community expertise into analysis [41]. HCI needs to explore methods for bringing community members into analysis, while recognizing the potential for traditional analyses methods to create epistemic burden [148] by using their time and knowledge to produce findings that primarily benefit the researchers. Through Case Study 3, I begin this line of inquiry by contributing a co-analysis process that I designed and implemented with my collaborators. I designed the process to prevent epistemic burden by centering my collaborators' research questions and by producing actionable findings that were relevant to their work.

1.4 Preview

Through this dissertation, I bring community perspectives into critical HCI discussions on how our research can create epistemic burden; how intersecting systems of power incentivize extractive research practices; and ways in which we can co-design research to resist dominating power paradigms and produce mutually beneficial outcomes. First, I provide an overview of the theories that underpin my approach and the research that I contribute to (Chapter 2). Next, I share a reflection on my positionality and how it impacts the work (Chapter 3). Chapter 4 details my methods, and I share summaries of the three case studies in Chapter 5. I present the findings from my intersectional analysis across two chapters (Chapter 6 and 7). In Chapter 6, I share three findings: 1) how capitalism produces incentives and pressures on researchers that are in conflict with their goals to produce social impact through research; 2) the benefits and challenges to countering epistemic gatekeeping; and 3) the ways in which cultural narratives shaped the work and our collaborative interactions. In Chapter 7, I identify five saturated sites of power: the project's inception, tangible

outcomes, relationships, mutual learning, and knowledge production. In my discussion (Chapter 8), I integrate the findings into three themes: 1) considering researcher capacity 2) finding opportunities to distribute resources, and 3) using narratives as a reflexive tool. For each theme, I offer recommendations and guiding prompts for co-creating CBPR and preventing epistemic burden [148]. I identify specific structural decisions that collaborative research teams can make to mitigate power imbalances in the collaboration. Finally, I close with a conclusion (Chapter 9) and limitations (Chapter 10).

Before moving forward, it is important to recognize that the insights my collaborators shared about collaborative research practices might cause feelings of discomfort or resistance for fellow researchers. Those feelings are natural, and Dr. Erete and I had to sit with them often through the course of this research. We are not accusing researchers of malpractice. Rather, we are trying to spark reflections about our positions within power structures, how we may unwittingly cause harm through our work, and how to build the self-awareness necessary to develop just CBPR practices.

CHAPTER 2. RELATED WORK

There has been a recent push in HCI to address race and histories of oppression in research [46, 61, 87, 140, 179]. In her CHI 2021 keynote address [14], Ruha Benjamin defined race through an intersectional lens, which I adopt in this dissertation:

> *[Race is] a feature of our social system, a founding political principal of modern life that justifies inequality. One that varies in different parts of the world, such that the way people are racialized is shaped by class, caste, culture, religion, language, and other social fault lines. [..] Race, we might say, is all about minimalism. A social technology for hiding complexity.* Ruha Benjamin [14]

Benjamin calls on HCI researchers to train themselves to dig beneath the "slick branding of racial minimalism" [14] to understand oppressive power structures such as race. My dissertation contributes to this effort by making systems of power visible in collaborative research. To do so, I draw from cross-disciplinary work that includes sociological and historical analyses of race and white supremacy, Black feminist thought (specifically intersectionality), and scholarship that identifies patterns of dominance in research while providing ways to develop justice-oriented approaches. This chapter describes the role epistemology and narratives play in maintaining systems of power, and how researchers can develop practices that disrupt dominating and extractive power paradigms. I first provide background on the history of race, racialized narratives, and epistemology. Next is a detailed discussion of intersectionality and intersectional methods. Lastly I share an overview of critical and resistant knowledge projects in HCI that include transformative justice, assets based design, and reflexive analyses of CBPR in HCI.

2.1 Systems of Power and Epistemology

2.1.1 Construction of Race and White Supremacy

We conducted the case studies in the United State; therefore, it is necessary to situate my work in the structural context of social inequality and violence in the U.S. Each study in my dissertation either addresses a symptom of systemic racism and/or counters the systems themselves. White supremacist and anti-Black ideologies use socially constructed racial categories as a divisive tool to concentrate power and justify the subjugation of people racialized as non-white (often referred to collectively as "people of color," a term which I use sparingly as it can imply that differently-raced people are a monolith and share a universal experience with racism, which is not the case) [20, 36, 113, 123]. These ideologies and narratives are pervasive and insidious, as they often implicitly value whiteness and therefore can be hard to identify and counter [20].

White supremacy is enacted through the epistemologies, laws, technologies, and institutions that normalize the inequities they produce by concentrating resources in affluent white communities [13, 21, 39, 51, 113, 121, 123, 125]. Throughout history, people have generated racist ideas to defend self-serving policies [113, 137]. Although colorism previously existed (i.e., discrimination based on skin color), the concept of race did not exist until Western colonization in the fifteenth century. Race is a tool that was socially constructed during colonization to ascribe meaning to physical characteristics and justify the subjugation of racialized peoples [36, 113, 123]. The colonizers racialized Indigenous Americans and Africans ("othering" them) in order to rationalize and defend enslaving them [113, 195].

Race fabricates categories of people to establish a social hierarchy, with "white" being at the top [21, 38, 195]. Who is considered white changes over time in response to the changing self-interests of those in power [36, 113, 123]; whereas the system of white supremacy remains constant and functions to maintain white power. It also suppresses resistance by creating divisions between people who are raced differently, but share other experiences of oppression (e.g, gender, class, religion, disability) [38, 51, 113, 165]. Race works through social structures, policies, and institutions,

including academia and the ways in which scholarly knowledge is produced [13, 36, 38].

Racialization is the application of concepts about race to people, interactions, practices, or systems. To learn how to confront issues of race and power in research, HCI researchers can learn from Vakil, McKinney de Royston, Suad Nasir, and Kirshner's (2016) work in education research [183]. They argue that race, racialization, and power need to be explicitly addressed in research interventions so that the knowledge they produce is as complete as possible and to illuminate the sociocultural competencies that are required when engaging with communities in research. "[I]nteractions with research participants are always racialized, regardless of the object of the design experiment, the race of researchers or participants, or the participatory or equity goals of a design project. [..] The presumption that [..] projects are not racialized because they do not involve non-White participants reifies the myth and privilege of Whiteness as normal and therefore nonraced" [183, p.189]. Developing an awareness of how white supremacy shapes ideologies, institutions, and technologies is therefore crucial for the HCI community's ability to identify and respond to issues of race and power [140, 183].

To build effective and ethical research collaborations with racialized community partners (regardless of whether the researcher is of the same race [87]), researchers need to work continuously to establish trust that "actively acknowledges the racialized tensions and power dynamics inherent in design partnerships" (Vakil et al., 2016, p. 199). Vakil et al. describe *political trust*. To build political trust, a researcher must be attuned to instances of racialization while designing and implementing CBPR. Such an awareness requires understanding the historic context of the community and the collaboration [87, 183]. Through my case study analysis, I explore how the constructs of race, class, and gender impacted my interactions in the studies, and how my awareness of racial history and narratives was critical for me to build political trust with our Black collaborators and community members.

2.1.2 The Role Narratives Play in Upholding Systems of Power

Social values and social constructs such as race are taught and reinforced through social narratives. Race itself can be thought of as a narrative where white supremacy establishes whiteness as the norm against which other races are defined. This schema frames deviations from whiteness and Eurocentric epistemologies as abnormal, or deficient [169, 184, 194]. Deficit narratives normalize racial inequities and attribute them to problems in communities, rather than to the racist ideas and structures that concentrate advantage in white communities [113, 125, 137, 146]. One example of a historically persistent deficit narrative is the concept of Black criminality, which attributes Black engagement in violence or criminalized behaviors to personal and cultural inferiority rather than to societal issues, as is the case with white criminality [2, 51, 137]. Intertwined with deficit narratives is the concept of rugged individualism, which asserts that hard work will improve one's station in life, an idea that is rooted in the racist theory of Social Darwinism [195]. Individualism denies the influence of structural impediments by framing success and status as attainable to anyone who works hard enough [113, 137]. An individualistic deficit narrative about crime portrays people who violate laws as deviant, selfish, and deserving punishment to make them work to overcome their deficiencies [15, 16]. Such narratives do the work of making social disparities seem natural, as if inequities are endemic to the communities that are harmed by them, which shifts focus (and blame) away from the racist structures that create and perpetuate the inequities.

Storytelling and creating counter-narratives is a way racialized people have resisted harmful deficit narratives [33, 146]. They have used personal and composite accounts of their experiences with racism to analyze systems of systems of power [51, 67, 140, 169]. Storytelling has been explored as a way to communally process racist events [80, 179], reframe narratives to center communities' strengths and counter deficit narratives [51, 140, 169, 178], and develop intersectional knowledge that centers complexity, inter-connections, and expertise gained from lived experience [15, 46, 66, 168].

Intersectionality as a critical theory has counter-narratives embedded in it, such as epistemic resistance. The theory itself is a counter-narrative to Eurocentric, hierarchical academic narratives

about how legitimate knowledge is produced and who can produce it. Epistemologies themselves create, and are created by, narratives about the natural order of the world. Counter-narratives provide a different frame through which to view the world, and enable us to see power structures that are typically hidden in plain sight, such as white supremacy and cis-hetero patriarchy [12]. My findings address the cultural narratives that impact interactions and political trust between researchers and community members. I explore how we can develop collaborative methods that challenge Eurocentric epistemic narratives by centering the expertise, strengths, and resources that collaborators from subordinated communities bring to research engagements.

2.1.3 Eurocentric Epistemology in Research Methods

Epistemology informs our values and world views by shaping how we understand knowledge and determine what we believe "truth" is. For a researcher to identify how systems of power impact their research, they need to understand how white supremacy manifests in dominant western epistemology, the academy, and traditional research methods [39, 140, 151, 183]. Beginning in the Enlightenment movement, natural and social scientists have used the guise of objectivity to validate racist ideas and invalidate Indigenous knowledge [21, 137, 168, 195]. Applying scientific methods that depend on categorization (e.g., surveys, qualitative coding, algorithmic modeling) to racial issues has been criticized for taking an individualistic approach that flattens the complexities of race and its connections with other systems of power [13, 38, 48, 84, 195].

The social science research methods that we use in HCI, particularly quantitative methods such as surveys, have a dubious racial history. They were created to categorize, quantify, and control Black people and justify racist policies. For instance, the scientific method was foundational to the racist study of eugenics, which used differences in phenotypic traits to "prove" the superiority of white bodies (and minds) [39, 113, 195]. Qualitative analysis methods that depend on categorization and segmentation (e.g., inductive and deductive coding) are based in the western epistemological belief that producing "valid" knowledge must involve an "objective" quantification process that decontextualizes participants' stories, insights, and other forms of qualitative "data." Decol-

onizing researchers have therefore resisted the assumption that the scientific method is the only legitimate way to produce knowledge. They urge researchers to develop and employ methods that incorporate other ways of "knowing," such as resistant and Indigenous epistemologies that legitimize knowledge gained through lived experience and non-academic research practices [10, 18, 39, 66, 99, 114, 136, 148, 168]. I therefore ground my analysis in Black feminist thought [38, 39] and use methods that resist Eurocentric epistemology (i.e., duoethnography [139] and intersectional analysis [66]).

2.2 Intersectionality as a Tool to Produce Resistant Knowledge

I analyzed the three case studies that constitute my dissertation using Erete, Rankin, and Thomas' intersectional analysis method [66]. This section offers an overview of the history of intersectionality as a concept that is rooted in Black feminist thought [38], the main themes of Patricia Hill Collins' theory of intersectionality [39], and intersectional methods.

2.2.1 History of Intersectionality

Patricia Hill Collins defines intersectionality as a critical social theory in the making, one which aligns with and draws from a wide array of critical social theories and resistant knowledge projects, such as critical race theory, decolonial theory, feminism, and Black feminist thought [39]. As a critical social theory, intersectionality seeks to understand and describe social issues in terms of relational power structures, with the goal of interrupting and transforming practices of domination to achieve more equitable outcomes [38, 39, 47, 48].

The practice of analyzing interconnected systems of power has a long history that is often not acknowledged by the HCI community [152, 155]. Collins provides an historical account of intersectional theories [39, 40], which I briefly summarize. The term "intersectionality" is a metaphor originally used by Kimberlé Crenshaw used to describe and understand how divisive social constructs (e.g., race, ethnicity, religion, gender, sexuality, disability, class, citizenship) converge to produce complex power dynamics and oppression [47, 48]. As she and Collins attest, intersec-

tional ideas have been articulated by subjugated people for centuries. Sojourner Truth's arguments in the mid-19th century exposed the multiple oppressions Black women experience [91]. In colonial mid-19th century India, Savitribai Phule's led intersectional activism against the caste system, religious oppression, and sexism [40].

Collins shares intersectional scholarship that employs other metaphors to expose and challenge the dominance of one-dimensional thinking [39]. For instance, Collins incorporates Gloria Anzaldúa's concept of *borderlands* [5], which is also a spatial metaphor (similar to intersectionality) that allows us to consider non-hierarchical power models and eschews binary or mono-categorical dimensions (e.g., race, gender, class) that cannot describe the complexity of social relations. Instead of being considered liminal spaces, Anzaldúa frames borderlands as spaces in their own right where complex social and political relations are co-created; categories of difference never exist independently [5, 39]. In her formulation of intersectionality as a critical theory, Collins integrates Chela Sandoval's scholarship on moving from hierarchical power models to more flat, egalitarian models [39, 161].

The metaphors of intersectionality and borderlands both challenge the ways in which knowledge is traditionally legitimized through academia. Collins counters epistemic silencing (i.e., censoring resistant ideas and scholarship through academic norms and policies) and epistemic smothering (i.e., self-censoring due to pressure to conform to established theories and practices) through her development of intersectionality as a social theory [39, 60]. Epistemic resistance is the practice of countering unspoken and explicit academic rules that invalidate knowledge created outside of the academe, especially by people subordinated within dominant power structures (e.g., white supremacy, capitalism) [39]. I engage in epistemic resistance by using an intersectional analysis method and identifying saturated sites of power that we can design to resist dominating power structures and exclusive ideology in collaborative research.

2.2.2 Intersectionality Key Themes

Based on her analysis of intersectional work across social science disciplines, Collins sets forth six central themes for intersectional critical inquiry: relationality, power, social inequality, social context, complexity, and social justice [40]. Next, I summarize each theme and how it relates to my dissertation.

Relationality is central to intersectionality, as its focus of inquiry is the relationships and interconnections between systems of power. My dissertation examines how systems of power manifest in the structures and relationships within CBPR. For instance, I analyze how capitalism, gender, and race interact through the experience of an early career, untenured, Black, female professor applying for and securing funding. *Power* is another key theme, as intersectional inquiry seeks to understand how power systems interact and co-create hierarchical social structures.

Collins and Bilge organize power into four *domains of power* [40]: the interpersonal, disciplinary, hegemonic, and structural domains. The *interpersonal domain of power* describes how constructs of race, gender, class, nation, etc. impact individuals' experiences, interactions, and social positions. The *disciplinary domain of power* refers to the rules that govern a space (e.g., academia) and determine what choices are available to individuals; these rules may be applied differently depending on a person's position within power structures, impacting the choices available to them. The *hegemonic domain of power* describes social narratives that normalize and rationalize social inequities, which serve to keep attention away from the proverbial "man behind the curtain," or the systems such as white supremacy and capitalism that cause inequities. The *structural domain of power* is concerned with how race, gender, class, nation, disability, and more shape institutions and in turn are reinforced by those institutions and their policies [40]. In my dissertation, I identify how systems of power are enacted through each domain of power, creating points of friction when researchers attempt to resist them.

Intersectionality addresses the theme of *social inequality* by interrogating the systems of power that produce inequities, rather than treating inequities and their social resulting problems as de facto features of society. I advocate for researchers to take this critical stance in their work by shifting

from focusing on "fixing" problems to working with communities to build counter-structures [7] to the systems creating the problems. My reflexive analysis exposes how capitalism (more specifically, racial capitalism [79, 129, 156]), impacts the structure of collaborative research and relationships within the research. The *social context* in which knowledge is created is a theme which "is especially important for understanding how interpretive communities, both academic and activist, organize knowledge production. This premise applies to the internal dynamics of a given interpretive community [..] as well as to how communities of inquiry are hierarchically arranged and valued" [39, p.46-47]. The social inequality theme is core to my dissertation because I analyze how domains of power shape the social structures within collaborative research and how knowledge is produced through them.

Intersectional inquiry must also manage the *complexity* that results from exploring the interconnections and relationships between social systems. Frequently intersectional analyses draw from multiple frameworks and fields of study. The multi-dimensionality of intersectionality also necessitates complex methods for critical inquiry. The saturated sites of power [39, 66] in collaborative research that I identify are sites of intersectional complexity where systems of power converge. I embrace complexity by drawing connections between different fields of study and action, such as Black feminist theory and activist movements such as transformative justice. By employing the intersectional analysis method [66] and duoethnogrphy [139] I integrate multiple perspectives and experiences.

Finally, Collins identifies *social justice* as a crucial theme that needs to be re-affirmed as intersectionality is more widely adopted. I situate my dissertation within the design justice [7, 46], post-colonial [62, 104], and critical HCI literature [87, 118, 148], which is dedicated to equity and transforming harmful systems. I urge researchers to leverage their institutional resources to further the justice and equity work being done by community groups. Furthermore, I identify saturated sites of power within collaborative research and provide recommendations for research design in order to support researchers and community members in designing studies that prefigure [7] justice within the collaboration itself. Intentionally designing the saturated sites of power to resist

extractive and dominating paradigms in research makes the work much more likely to achieve its social justice aims.

2.2.3 Intersectional Analysis

Researchers have developed intersectional methods to understand Black women's experiences in higher education broadly [91], and specifically in computing [67, 154, 178]. Haynes, Joseph, Patton, Stewart, and Allen (2020) derive an intersectional methodology from Kimberle Crenshaw's intersectional theory [47, 48, 91], while Erete, Rankin, and Thomas [66] derived an intersectional analysis method from Patrica Hill Collins' intersectional theory [39, 66]. Haynes et al. employ Crenshaws' dimensions of intersectionality (representational, political, and structural) to describe the elements of an intersectional methodology [47, 48, 91]. Erete et al.'s method employs Collins' parallel domains of power (interpersonal, disciplinary, cultural, and structural) [40] as a tool for analysis. Based on a systematic review of intersectional research, Haynes et al. define intersectional methodology as attending to power and complexity while uncovering narratives that counter structural forces driving Black women's epistemic silencing and smothering [60, 91]. While Haynes et al. describe what an intersectional methodology is, Erete et al. introduce a new method to enact it.

Erete, Rankin, and Thomas' *intersectional analysis method* [66] involves five interconnected and *non-linear* axes of analysis: 1) intersecting power structures, 2) cultural narratives, 3) instances of subjugation, surveillance, or assimilation; 4) acts of resistance, and 5) saturated sites of violence [66]. *Saturated sites of violence* is a term Erete et al. [66] adapted from Collins' *saturated sites of power*, or "conjunctures where systems of power meet," [39, p.235]. To demonstrate the method, Erete et al. analyzed Erete's testimony of her experiences leading one of the three case studies I present in this dissertation (Case 2, the Street Peace mobile application study) [66].

I employed an intersectional methodology by using the intersectional analysis method [66] to identify how domains of power produce saturated sites of power in CBPR [39, 66]. Through my analysis I surface the narratives and counter-narratives embedded in, and told through, research.

Narrative analysis relates to the representational dimension of intersectionality methodology [47, 48, 91] and the hegemonic domain of power in Collins' theory of intersectionality [39, 66]. Erete et al.'s intersectional analysis method thus provides a structure for researchers to practice an intersectional methodology.

2.3 Resistant Knowledge Projects in HCI

Analyzing power and epistemology in CBPR is gaining increasing attention in HCI. Much progress has been made to counter extractive and epistemically dominating disciplinary norms for producing knowledge (e.g., [61, 66, 87, 118, 148]) since Irani, et al. introduced *postcolonial computing* [104] and Hayes introduced action research [90] to the field. Action research (AR) and CBPR challenge generalizability, embrace the values of everyone involved, and assert that research should make a real-world (i.e., non-academic) impact [41, 46, 90, 109]. Irani, et al. (2010) incorporated the concept of postcolonial computing into HCI, which interrogates "the many ways histories, power relations, and epistemology tacitly underpin engagements in design" [104, p.7]. They began the work of problematizing our participatory methods, pointing to the one-directional nature of research exchanges where researchers extract "data" from communities and fail to recognize the larger historical, political, and structural context of the research (later extended by [61, 62, 87, 148]).

Postcolonial computing "directs us to think about what people bring into the encounter and what they take away from it [..], reframing design methods from extractive processes, such as lessons learned, knowledge gained, or requirements identified, to mutual encounter and learning in which responsibilities between different parties are enacted" [104, p.7-8]. Scholars working to interrogate power in HCI research have conducted reflexive critiques of case studies (e.g., [66, 87, 118, 148]) and incorporated intersectionality ([66, 154, 178]), critical race theory (e.g., [67, 140, 179]), and assets based design (e.g., [54, 144, 191]) into their work. I provide an overview of justice-oriented approaches in HCI next; they bring practices from transformative justice and assets-based community development (ABCD) into HCI. I share recent work in HCI that provides

reflexive critiques on CBPR, as well as literature addressing intersectionality and race.

2.3.1 Transformative and Design Justice

Transformative justice is a liberatory movement to heal communities and resist systemic oppression and State violence [58, 111]. Originating from Native and Indigenous peoples' practices [89], transformative justice's goal is to address harms that have resulted from discriminatory and oppressive laws, policies, and practices [78, 89, 98, 135]. Transformative justice imagines and creates alternative structures and systems that center people, relationships, and communities who have historically been targeted by State violence [98]. By State violence, I refer to the physical, emotional, financial, psychological, and mental harms imposed on individuals and communities through the use of force, intimidation, or structural policies that impede individuals' and communities' freedom to thrive and grow [2, 111, 113, 125]. Such violence has been implemented not only by federal, state, and local governments, but also by institutions and organizations that engage in unjust, biased, and discriminatory practices.

Transformative justice seeks to replace harmful and ineffective institutions (e.g., policing, prisons) by funding social programs and creating alternative structures that center care, accountability, and healing [98, 111]. Implementations of transformative justice include street outreach organizations [16] and collectives that practice transformative justice in their communities [11, 58, 78]. Due to the COVID-19 pandemic exposing and exacerbating existing inequities, radical care [94, 147] and mutual aid [170] transformative justice practices have bloomed [27]. Care and mutual aid have been explored in HCI interventions that frame care as a community asset [112] and facilitate collective action regarding labor practices [30, 105, 130], entrepreneurship [97], street harassment [57], and housing [8]. Central to transformative justice is the belief that individual healing and justice are inextricably tied to collective liberation [78, 133]. The combination of working at interpersonal and structural levels is what sets the model apart from restorative justice [16, 135]. Thus, transformative justice addresses harm at both the individual and system levels by creating *counter-structures*, community-based alternatives to harmful social and political structures [7, 16,

111].

Principles from transformative justice can be applied to any context where systems of power have caused harm. The field of HCI has begun to incorporate transformative justice into design values and methods [7, 35, 46, 52, 68, 150] as well as critical data studies [13, 132]. For instance, Ruha Benjamin uses liberatory imaginaries to critique how society and technology co-create descriminatory designs, such as those used in predictive policing [12]. "To extricate carceral imaginaries and their attending logics and practices from our institutions, we will also have to free up our own thinking and question many of our starting assumptions, even the idea of 'crime' itself" [12, p.5]. This practice of recognizing the status quo (i.e., the "water" to a fish) and imagining alternative futures is a central transformative justice aim [58, 78, 94, 135] that I take up in my dissertation.

I apply the following central tenets of transformative justice to my work: addressing root causes of harm while also ameliorating its impacts; taking a community-centered approach that fosters relationships and leverages strengths; and developing counter-structures to violent, harmful, and oppressive policies and institutions [16, 78, 89, 135]. In HCI, Mariam Asad's *prefigurative design* offers a framework for enacting, or pre-figuring, such futures in collaborative, community-based interventions. Asad pushes researchers to take a more reflexive approach by considering how our interventions benefit and/or harm our collaborators [7]. To prefigure a future where Black, Latinx, Indigenous, and other communities subordinated within white supremacy thrive, we must situate all transformative justice initiatives as owned and controlled by communities impacted by harm. There is no specific model or formula for transformative justice; instead each iteration is unique, because it is applied to each community depending on their particular local histories, strengths, challenges, and goals [16, 78, 133]. I hope that identifying saturated sites of power within research engagements, therefore making power structures more visible, will help researchers and collaborators design studies that build sustainable counter-structures.

Design justice is an orientation that aligns with transformative justice and is rooted in BFT principles to counter interlocking structures of race, class, and gender [7, 38, 46]. Design justice

identifies how oppression is replicated through design [12, 13, 146, 181] and offers a structure to resist it [46]. Contrary to approaches such as human-centered design (HCD), which tend to design for a narrow group of privileged users, "design justice practitioners [..] prioritize design work that shifts advantages to those who are currently systematically disadvantaged within the matrix of domination" [46, p.53] and asks "how design can best be used as a tool to amplify, support, and extend existing community-based processes" [46, p.84]. Design justice relies on an inclusive design process that diversifies not only the teams "doing" design, but the values encoded in the designs, the design sites, and the intended users. Key to design justice, as well as my dissertation, is community ownership of the design process and building avenues for accountability [7, 46]. Shifting design's purpose from addressing deficits and problems to building upon assets [23, 115, 194] is a design justice goal that is integral to my dissertation [46, 52, 54].

2.3.2 Assets Based Design

Assets-based community development (ABCD) [115, 128] is a practice that advances social change by working with communities to build upon their existing human, social, cultural, and economic strengths, or assets. The aim of ABCD is to work with a community to "begin to assemble its strengths into new combinations" [115, p.25]. In ABCD, a civic planner or designer acts as a facilitator for the community to create a connected infrastructure of assets and relationships that the community can harness to address current and future issues [115, 117]. A key aspect of ABCD is identifying and articulating the issues (rather than large, abstract problems) that motivate people in a community to act [115]. It is important that the community owns and drives the process so that the project is sustainable. Community members are able to identify assets that an outside designer may not recognize or may not be valued by dominant and oppressive ideologies [23, 194].

From a methodological perspective, shifting to an assets-based approach represents a fairly radical departure from traditional HCI methods. HCI research and design methods are framed around identifying unmet needs. Human- and user-centered design begins with embracing a problem that needs fixing. An assets-based approach, however, chooses a different point of departure for design.

Instead of solely focusing on needs and deficiencies [23], it intentionally explores what communities are already doing, the assets in the community, and looks for ways to connect and build upon those strengths and practices. The move to an assets-based approach in HCI [34, 54, 77, 81, 97, 112, 144, 190] contributes to design justice's aim to shift the role of designers as problem-solvers to designers as facilitators [46], with a specific focus on working with residents to identify and build upon their communities' assets. The community members and designers bring their expertise, strengths, and resources to the collaboration. The goal is to build local capacity to continue the process after the designer is gone [117]. By co-designing [160] sociotechnical systems that build upon and amplify assets, we have an opportunity to work with communities subordinated within systems of power to counter those systems and structures.

It is important that researchers collaborating with communities who are resisting structural violence take an assets-based design approach that centers the strengths, values, knowledge, and existing practices of the community [54, 77, 144, 158, 190, 191]. A theme of my dissertation is how asset-based approaches to CBPR more readily produce mutually beneficial outcomes.

2.3.3 Reflexive Critiques of Collaborative Research in HCI

HCI's reflexive critical literature includes approaches such as design justice [46], prefigurative design [7], and postcolonial design [104]. Harrington et al. assert that "decolonizing participatory and collaborative design also means examining the ways it has been appropriated to fit the needs of those who have privilege, and considering how it might be used to transform systemic oppression" [87, p.20]. In the following sections, I share HCI literature that has examined extractive practices in CBPR, the distribution of benefit, project framing, historical research injustice, assets based design, epistemology, and care.

Academic structures fueling extractive practices

Prior work has explored how the academe, professional bodies (e.g., the ACM), and funders encourage extractive collaborative research practices. Dourish, Lawrence, Leong, and Wadley (2020)

provide a critique of engaging in iterative design cycles with Indigenous communities and trace the motivations for this practice to the structural domain of power [40]. "The search for [..] neatly packaged 'take-home messages' that can fit within ever-shrinking conference presentation slots, results that can be generated within the annual cycles of research production and promotion, and outputs that are legible within familiar disciplinary frames – is part of the problem that we have set out to diagnose. [..] Funding cycles, professional development, publication schedules, and curricular demands are (or at least seem) unavoidable, but we should be conscious of how they then manifest themselves within our research activities themselves" [61, p.8].

A theme across critical HCI literature is the challenge for community-based researchers to meet professional demands due to evaluation criteria (e.g., publications, grants, curricular demands [41, 61, 118, 120, 148]) that can prevent them from building long-term commitments to communities. This conflict often leads to extractive research (i.e., research that benefits the researcher while giving little in return to the community) and "research abandoment" [87, p.21] (i.e., where a researcher drops into a community and does not sustain the work). Le Dantec and Fox (2015) learned that building and sustaining relationships with collaborators is a time and labor-intensive process, particularly for researchers who share experiences of oppression with their partnering community [87]. Therefore, "we need to [..] grapple with how to make visible the work before the work, and the work to keep the work going, so its role in shaping the research and the outcomes of research are made more accessible" [118, p.10].

Similarly, based on their systematic review of collaborative literature, Cooper et al. (2022) identify scholars' professional motivations for doing research (e.g., funding, publications) as reasons why there are few examples of researchers including community partners from problem identification through analysis [41]. Cooper et al. (2022) suggest that granting and publication structures could be shifted to incentivize co-creating research agendas and developing communities' capacity for data analysis and technology development. They propose developing metrics to determine community benefit, outcome sustainability, and relationship stability; scoping funding to include time for check-ins and ongoing assessments with the partnering community; and creating

venues within HCI devoted to ongoing community outcomes [41]. Liang et al. suggest creating additional avenues to recognize community-based researchers and to reward ongoing engagement with community partners [120].

Harrington, Erete, and Piper (2019) advocate for shifting funding structures to sustain longer-term collaborative research. "Sorting out tensions with commitments to funding agencies may require seeking funding through alternate sources, such as foundations focused on advocacy and social justice. Building in ways for researchers to stay in the field after funding ends or without any funding at all is also critical, particularly given the emotional labor of being there" [87, p.21] Aligned with [61, 76, 118, 120], Harrington et al. pose that the authorities that make up the structural and disciplinary domains of power in academia need to shift the requirements and metrics for evaluating collaborative research, especially in communities with histories of research injustice (e.g., Indigenous or Black communities). "This may require reframing the value and academic incentives of pre- and post-study work. Without reimagining the value proposition of this work and changing the academic culture of publication, research abandonment seems inevitable" [87, p.21]. Duarte, et al. (2021) bring attention to the contrast between the neoliberal metrics used to evaluate researchers and their community collaborators. "As academics, our effort is measured by our productivity, whereas for our project partners, effort is often measured by stabilization of relationships, including service to their constituent communities and distinct governments" [62, p.24].

Requiring academic contributions to be novel and generalizeable drives extractive practices [61, 120, 148]. The pressure to generate measurable impact can lead researchers to "overestimate the benefits of their work and underestimate the risks, [which] will inevitably lead to exploitation" [120, p. 38]. There is a risk that researchers will appropriate community resources (e.g., funding, time, labor) in pursuit of novel findings, detracting from social justice aims [120, 148]. And although the IRB is intended to prevent such harm, it is not designed to clearly communicate less tangible or indirect potential benefits and harms from CBPR in HCI [120]. Liang et al. recommend that researchers be clear about the limitations of their proposed technologic interventions due to

their incomplete understanding of the problem and social context [120]. This recommendation is echoed by a panel of community members who reviewed HCI social justice proposals [76]. Pierre et al. also call on researchers to attend to local context and make humble recommendations instead of generalizable findings [148].

Research injustice, project timelines, and distrust

The cycle of academic funding often means that community research collaborations are short-term encounters that are difficult for researchers to follow through. Research abandonment can exacerbate existing distrust toward researchers caused by histories of research injustice [41, 61, 87, 104, 148]. There is also a tendency for participants to associate researchers with institutional authorities who hold power over them, which fosters distrust [87].

Dourish et al. (2020) connect histories of oppression to the HCI method of design iteration using feminist and decolonial theory. They frame iteration as a practice that asks the partnering community (in their case, Aboriginal Australian communities) to invest time into using a tool and providing feedback, while the multiple design cycles delay any benefit they might recoup from the tool. Iteration also can tap into painful histories of subjugated communities being expected to "make-do" with subpar services and infrastructure. It also presumes that the intended users will trust people in power to deliver the tool, though subjugated communities have good reason to distrust such authorities. Often what is a novel intervention for designers is not for the communities they are working with [61, 87]. "What we as researchers perceive as the start of an iterative design process may not seem that way to indigenous communities, for whom it may in fact be essentially the continuation of an iterative process with a history of tens or indeed hundreds of years" [61, p.6]. The short cycle of academic funding can exacerbate communities' distrust while placing emotional demands on researchers to manage these historically complex relationships through a system not designed to support long term commitments [61, 87].

In order to understand how participants might perceive researchers, it is necessary to view design interventions in the context of communities' historic relations to institutions and systems of

power [87, 118]. In a participatory design study with older adults in a racialized community, Harrington et al. found that participants were reluctant to share full personal accounts of experiences because they viewed the researchers as authority figures who could share information with other institutions that could cause them harm (e.g., losing housing). This suspicion combines with a perception that "academic researchers, regardless of similarity in race, may not understand everyday challenges associated with living in their neighborhood due to education and class, and that their objective in research was self-served and not vested in community advancement" [87, p.11]. Thus, even for same-race researchers, there are considerable hurdles to gaining acceptance into a community created by the historical power context.

Le Dantec and Fox (2015) encountered the same challenges, when they, as white researchers from a powerful university, entered into a local racialized community to try to find opportunities to bring their skills and resources to support community engagement. However, the researchers encountered stiff resistance from residents, who blocked them from partnering with the local community association (though ultimately Le Dantec and Fox transformed their research process and co-created a project with residents). The researchers' affiliation with the university, which had a fraught history with local racialized communities, created a base layer of distrust that the researchers' techno-centric approach and deficit language worsened [118]. Le Dantec and Fox's honest and vulnerable account of this study provides an insightful perspective on how following a standard HCI CBPR process is not appropriate in communities with fraught histories of research injustice and institutional harm.

Benefit distribution and problem identification

The delayed community benefit usually involved in CBPR in HCI and the way benefits are distributed among collaborators can cause harm to community collaborators [41, 87, 118, 148]. Questions about benefit and contributions are directly tied to who identifies a problem to address through research [41, 62, 148].

The lack of "actual resolve" and "temporary nature" of design workshops can cause harm [87,

p.3]. This problem led Le Dantec and Fox to design their workshops to provide rewarding experiences for those participating [118]. By designing the research itself to produce some kind of community-defined value, the research becomes less extractive, because it ensures that the community will benefit even if the intended outcomes are not fulfilled (e.g., if an integrated technology is not effective). Another form of benefit scholars have discussed is grant funding. When grants are not distributed to community groups it creates an inequitable benefit distribution between the researchers and community collaborators. In response, scholars recommend including community organizations in budgets and/or offering free grant writing training to partners [62, 148]. Duarte et al.'s Full Circle Framework is designed to address the harm that results from short-term extractive research that does not contribute community-defined benefit for the participating community. In the framework, "multiple iterative projects develop and sustain tribal sovereignty as they build on each other and accumulate resources," [62, p.11], which "can be directed by the community to work synergistically across a dynamic and organic environment to empower community sovereignty over a long-term timescale" [62, p.28].

The discussion about benefit in community-based research is not limited to what the community partners get out of the engagement, but also whether the work is primarily designed to produce an academic contribution or contributions for the community [61, 62, 76, 118]. Dourish et al. pose the question: "What might an HCI be whose primary commitment to the communities it serves overrides a commitment to conventional research production" [61, p.8]? Le Dantec and Fox's shift from a techno-determinist research framing (where they entered into a community with the goal of finding issues to address through technology), to framing the work around the anticipated contributions to the community, was a pivotal change in their study. "The reversal that enabled us to develop a working community partnership was the move to situate our contribution in terms of the local community instead of the research community [..] The challenge for us became translating the community contribution into research instead of translating the research into community contribution" [118, p.9].

Crafting a research agenda that centers community benefit requires the research itself to be

co-created with the community [41, 62, 76, 118, 148]. However, for a researcher to co-design a research engagement that prioritizes community benefit and impact over academic contributions, they will need to cede power in the collaboration and potentially academic acclaim [76, 148]. The Full Circle Framework [62] addresses the issue of project framing and initiation in CBPR and PAR: "the first step in the Full Circle Framework is that community stakeholders must *invite* [emphasis added] researchers into the circle" [62, p.9]. In their systematic literature review of collaborative community research in HCI, Cooper et al. find that the majority of projects have been pre-defined by researchers, and community involvement has not occurred across all phases of the project. Pierre et al. call for collaborative researchers working with minoritized groups to "fundamentally shift their approach to research framing, guiding, and organizing when conducting participatory design research [..], allowing community groups to set the research agenda and terms of engagement" [148, p.8]. I address this gap in this dissertation because our community collaborators initiated two of the case studies, and in one of the studies they participated in analysis.

Moving away from deficit techno-solutionism to assets-based design

A thread that runs through the critical literature on collaborative HCI research is to move away from a techno-solutionist viewpoint (where a technology will "fix" a problem) to asset-based approaches [54, 87, 97, 148, 191]. For Le Dantec and Fox, their initial technology-centered deficit approach (i.e., identifying an issue that they could design an intervention for) caused the residents to bar them from partnering with the community association. This setback led Le Dantec and Fox to an assets-based approach where they co-designed a study that captured residents' oral histories of their community [118]. Harrington, Piper, and Erete connect this deficit-tendency in participatory design to the power structures that fund and incentivize such approaches. "Design thinking has unintentionally shifted PD to devalue existing assets or environments of underserved communities [..] Another facet of this bias towards novel techno-centric solutions over existing assets is that much scholarship within CSCW and HCI is funded by organizations that prioritize computing and engineering research. Thus, we must be cognizant of potential decentering of community interests

due to valorization of technical innovation along with corporate notions of design. [..] We propose that we instead emphasize solutions that will be considered successful by community metrics" [87, p.19]. Pierre et al. came to a similar conclusion in their reflexive critique of their study in which they entered into a community with the goal of using data to advance community approaches to police reform. "A completely different, opposite approach would have been to take the community organizers' approaches, arguments, and data as the central focus and foundation of the work, and dedicate our efforts to work with these communities to reach their own goals" [p. 7-8] [148]. Dr. Erete and I went through a transformation over the course of the case studies, where the first was a short-term, drop-in engagement about a topic we were interested in, and the second and third were initiated by our community partners to support work they were already doing.

Epistemology in collaborative research

HCI researchers have begun to interrogate their knowledge-producing practices and how they relate to power (e.g., [66, 67, 87, 148]). This shift is congruent with the move to co-create research that centers communities' assets and goals. Pierre et al.'s analysis of *epistemic burden* constitutes a major contribution to this line of critique and inquiry. Epistemic burden is "a way to identify and acknowledge exploitation, extraction, and injustice that may be taking place in participatory design collaborations. In turn, this process ideally gives us better traction and clarity to evaluate when such collaborations and relationship dynamics are doing more harm than good, and/or what we can shift or adjust to mitigate some forms of harm" [148, p.4]. They outline three types of burden: 1) diverting community resources from their own agendas; 2) assuming data has to legitimize community assertions, thus making community members explain their experiences of oppression to people in a stronger position of power; and 3) reputational injustice, where professional benefit is hoarded by researchers due to neoliberal academic structures [148]. The presumption that communities need to translate their knowledge gained from lived expertise into "objective" and quantifiable data for it to be legitimate can foment distrust and prevents collaborations from producing lasting outcomes [148]. This form of epistemic burden is in conflict with CBPR's goal of

including communities throughout the entire phase of research, including analysis (though there are few examples of participatory data analysis in HCI [41]). This is a tension that I explore through my third case study where we engaged in collaborative analysis.

Another line of epistemic reflection in collaborative HCI is the role of lived expertise in the research. As Duarte et al. point out, in collaborative research "there is often a presumption of understanding about what life is like" [62, p.28]. However, by using a humble, humanistic approach to ethnographic research, designers might develop an understanding of "the epistemic friction needed to truly innovate for a place and a people over time" [62, p.28]. Harrington et al. take a similar stance regarding the importance of epistemic friction in collaborative design, proposing that designers act as "navigators of complexity and ambiguity, addressing challenges that sit at the intersection of technological advancement and social need, but only when we consider our own privileges and positions of power and the ways these constructs work against engagement with underserved communities" [87, p.20]. This stance aligns with the intersectional tenants of embracing complexity and resistant knowledge. "Such an approach also requires that we situate community residents as living experts of the research areas we explore. They should be considered valuable for their knowledge and lived experience in the same way that we consider domain experts in design" [87, p.20]. We will see this argument supported by my collaborators in Case Studies 2 and 3. This shift in epistemic values also creates the potential for a more balanced, caring relationships within CBPR.

Relationships, commitment, and care

As articulated by Cooper et al., "social relations between community members are key to the existence of a community" [41, p.12]. Therefore, it is paramount for collaborative research to consider the relational role(s) of the researcher and how relationships are structured, formed, and cared for through the research [62, 118]. Le Dantec and Fox developed a strong collaborative relationship with a community leader after acknowledging their initial harmful interactions with residents. They created a Memorandum of Understanding with their community partner that outlined their

responsibilities to each other, potential benefits resulting from the collaboration, and actions the researchers would take to return benefits to participants and their community [118]. Based on this experience, Le Dantec and Fox reflected on the complex power and relational dynamics inherent in community based collaborative research. "We are variably researcher, confidant, advocate, interloper, invader, and collaborator [..] We are often continually balancing scales of institutional authority with personal connection" [118, p.9-10]. The intersectional nature of relationships in community research has led other researchers to develop protocols for engaging with communities, such as Asad's *prefigurative design* toolkit to prevent harm and promote healing [7]. The Full Circle Framework depends on "researchers maintaining reciprocal and ethical relationships with people who live in and care for a particular place. Thus, as researchers, we must continually confirm our relational role" [62, p.9]. Efforts to formalize responsibilities among collaborators and to set expectations about outcomes [7, 118] are acts of care that signal the value of the collaborative relationship.

Scholars have also been recognizing the "care labor" associated with conducting community based research [66, 87]. For instance, racialized researchers experience an added level of emotional burden when developing relationships with people who are similarly racialized, but are wary of research due to their communities' histories of research injustice. As Harrington et al. state, "Black researchers still face gatekeepers and must answer to histories of research injustice, and [..] there is considerable emotional labor that comes with getting into the gate" [87, p.17-18]. Duarte et al. put researchers' care giving roles within and outside of research in context of the COVID-19 pandemic, as the women on the research team took on additional care giving in their homes. In response, they developed a practice of routinely checking in on team members' capacity for labor, which connects to assets-based design."If we revisit the ABCD model of ICT deployment, the COVID-19 pandemic certainly indicates the value of care as an asset in community technology deployment. [..] We can measure care as a resource because when it is present in a project, the project team rapidly and compassionately adapts and responds to unexpected circumstances" [62, p.27]. This responsiveness is evident in Case Studies 2 and 3, in which we experienced

unexpected upheaval in the project (and the world), but were able to draw on our relationships with our collaborators to adapt and continue the projects while balancing our own care giving responsibilities in our personal lives.

Finally, practicing care in relationships in research also requires researchers to engage in uncomfortable personal work to understand their standpoint within systems of power that create the social inequities they are trying to address [44, 61, 120]. Such a reflexive process involves "a deep, probably uncomfortable journey toward learning about what their membership has granted them and their relationships with systemic racism, capitalism, patriarchal society, ableism, homophobia, transphobia, and many more" [120, p.30]. Dourish offers probing questions to guide such a process [61], which I extend through my prompts to help researchers recognize saturated sites of power and potential for causing research harm.

2.3.4 Intersectional HCI

Intersectional HCI explores a wide array of systems of power (e.g., gender, nation, class, disability) in different contexts. Focusing on Black women's experiences in computing, Rankin, Thomas, and Erete applied their intersectional method [66] to understand structural barriers for Black women in computing [154] and reasons why they persist in computing [178]. Recent work applies BFT and transformative justice to create design practices and computing spaces that center Black girls' and women's experiences [68, 151]. In addition to the work on understanding the structural exclusion of Black women in computing, HCI scholars have begun to analyze how systems of power coproduce specific lived experiences [151, 152, 163, 177, 178] and identify how whiteness and power manifest in research methods [87, 118, 148, 155].

Kumar et al. (2020) took an intersectional approach to understanding women's well-being in India through a meta-analysis of 13 studies that spanned geographic areas as well as religion, class, and caste [116]. Addressing power structures within accessibility studies, Hofmann, Kasnitz, Mankoff, and Bennett (2020) apply the intersectional practice of centering their own experiences as people with disabilities as a legitimate data source and expose how ableism and the

oversimplification of disability are enacted within accessibility studies. The authors advocate for the accessibility field to incorporate disability justice principles that center people with disabilities' viewpoints, histories, strengths, and diverse intersecting identities [95].

Challenging cis-hetero patriarchy and white supremacy, Scheuerman, Branham, and Hamidi (2018) studied transgender people's experiences in digital and physical spaces, with attention to racialized trans women's experiences. They found that trans people create digital safe spaces for activism and interpersonal connection, but that these spaces can become sites of converging systems of power that cause harm. Based on their findings, Scheuerman et al. recommend that designers consider how power operates in digital spaces, and for cis designers to incorporate the perspectives and lived expertise of trans people into their work [162]. Starks, Dillahunt, and Haimson (2019) take up this call by developing a wearable technology that trans women and non-binary racialized people can use to protect themselves from violence [171]. Although I do not address disability or non-conforming gender identities in this work, I do practice an intersectional approach in this dissertation by investigating how race, gender, and capitalism impact collaborative research.

2.3.5 Race in HCI

Critical race theory (CRT) is an intersectional theory that Ogbonnaya-Ogburu, Smith, To, and Toyama (2020) introduced to HCI [140]. CRT emerged from Crenshaw's intersectional legal analyses showing how systems of power combine to uniquely oppress people who do not fit into a legal framework designed to address discrimination based on race or gender, but not both [47, 48, 51]. CRT demonstrates that racism is an inherent, ordinary part of our social, political, and institutional systems and daily life, and that not acknowledging race (being "color-blind") is a harmful form of racism [20]. Ogbonnaya-Ogburu et al. (2020) engage with CRT to encourage researchers to recognize how race intersectionally manifests in research and design, and to enable us to develop anti-racist practices in our work and communities. Addressing race through an intersectional lens is important, because "[t]reating race as a discrete variable in the design process often overlooks structural effects of race on design outcomes" [140, p.4]. They assert that we need to address race

in every research intervention and recognize the limitations of our contributions if our analyses are conducted by all-white, or otherwise non-diverse, teams [140].

To, Sweeney, Hammer, and Kaufman (2020) implement CRT in their research on interpersonal racism by offering a view into racialized people's strategies to make sense of, and cope with, everyday racist experiences (i.e., microaggressions) [179]. Through narrative episode interviews [136], the authors found that identifying the "right" people to provide social emotional support after racist interactions is a complex challenge, one which sociotechnical systems could potentially address with attention to user agency and trust building [179]. Erete, Rankin, and Thomas [66] also employ a method that asserts their testimonial authority by conducting an auto-ethnography of their traumatic personal and professional experiences during a global pandemic and concurrent racial uprising ignited by social oppression and State violence [67]. The authors detail their experiences with harmful microaggressions in personal and professional interactions, as well as institutionalized racism and lack of support, and call on their colleagues to actively engage in dismantling institutionalized racism [67]. I take up this call in this dissertation by analyzing how racial narratives and capitalism work through the structural and disciplinary domains of power to incentivize harmful extractive research practices. I intend for the saturated sites of power that I identify to be used as a tool by other researchers to resist such practices.

CHAPTER 3. POSITIONALITY STATEMENT

Reflexive analysis is central to interesectionality [39]. Given that my dissertation is an analysis of power, it is important that I share my standpoint within the dominating constructs of white supremacy, capitalism, gender, and disability. I am a white, heterosexual, cisgender woman. I have varied experiences with class, but have never experienced housing, food insecurity, or community violence (which is common in the communities in this dissertation). As a product of small amounts of inter-generational wealth and access to home loans, I attended well-funded public schools that had services to help me achieve academically despite having a learning disability. My parents have also been academically, emotionally, and financially supportive. The systems of power that benefit me have created inter-generational barriers for many of the people who participated in the case studies. My difference in standpoint within power structures likely impacted the information and stories they chose to share, as well as how I interpreted them. My dissertation is an attempt to understand my community partners' perspectives on how my positionality, as well as Dr. Erete's, impacted our work together.

When analyzing systems of power, it is critical to understand the systems from the standpoint of people subordinated within them—which is not a position I inhabit. It is my goal to take on some of the labor required to chip away at white supremacist systems in research while centering Black voices and scholarship. As Rankin, Thomas, and Erete (three Black women) state, "we did not build these systems and should not be responsible for destroying them" [154, p.807]. I incorporate lived expertise with intersecting systems of power by 1) conducting a duo-ethnography [139] with Dr. Erete about our experiences as a Black woman and a white woman in these studies; 2) hiring a Black woman as an external evaluator to interview our past collaborators, including specific probes about systems power; and 3) grounding my work in Black feminist thought and intersectionality.

CHAPTER 4. METHODS

This chapter details how I analyzed the three case studies. I conducted a review of study documentation, hired an external evaluator to conduct interviews with six past collaborators, conducted a duo ethnography with Dr. Erete, and analyzed the data using intersectional analysis [66].

I began my case study analysis by first reviewing documentation from each study (e.g., emails, calendar events, notes) to refresh my memory and understand how we communicated and structured each collaboration. I compiled the analysis into a table summarizing key dimensions of the studies 5.1. Next, I developed an interview protocol (Appendix A) to elicit our partners' reflections about the collaboration, their role in it, how it was structured, the outcomes, and whether they thought systems of power (i.e., race, gender, class) impacted the study or study interactions. In designing the protocol and interview style, I adopted the epistemic stance laid out the Zora's Daughters Black Feminist Interview Guide [108]. This involves creating space for the interlocutor to share what they deem is important and to bare witness to their experiences [108].

To recruit for the interviews, I emailed two collaborators from each case study. These were the community partners I worked the closest with in each study. I wanted to hear about our collaborations from their perspectives, so in the recruitment email I only referenced our work together and did not provide reminders about the details or study outcomes. I framed the interviews as being about the power dynamics in the study we collaborated on (I did not mention race, gender, class explicitly), and about getting their advice on how these types of studies should be structured. Each person agreed to an interview and received a $70 gift card (a limit set by our university due to tax implications) to thank them for their time and contributions.

To de-center my viewpoint as a white academic researcher, an external evaluator (who is a Black woman) helped me edit the collaborator interview protocol. Before conducting the interviews she read my dissertation proposal, papers I had written about the studies, and interview protocols. She conducted six 50 minute interviews via Zoom using a semi-structured approach. I

collected basic demographic information via a survey that our evaluator sent to each participant at the end of their interview. She recorded the interviews to Zoom and shared the recordings and automated transcripts with me. I edited the transcripts before analyzing them using Erete, Rankin, and Thomas' intersectional analysis method [66]. The method consists of five inter-connected, non-linear steps:

1. *Identify the saturated site(s) of violence*
2. *Identify intersecting systems of power and who holds power*
3. *Describe the conceptual glue that binds together intersecting systems of power*
4. *Examine the ways in which less dominant groups are subjugated, surveilled, and/or expected to assimilate*
5. *Identify acts of resistance*

[66, p.9]

The study that Erete, Rankin, and Thomas analyze in [66] is the same as Case 2. To avoid being influenced by their findings, before I started analysis I only read through the methods of their paper. To organize my analysis, I created a Google Doc table that listed each "step" in the rows and a column for each interview. I pasted quotes and notes about how the quotes related to each step of the analysis. I reviewed each interview multiple times.

Synthesizing the data involved a process in which I wrote multiple drafts of the findings. Dr. Erete and I met over the course of six to eight months to discuss the drafts. I describe this approach to synthesis as a duo ethnography [139], because it was a conversational and written process for delving into themes emerging from the data from our positional viewpoints. We discussed our reflections about our collaborators' insights; shared our recollections about our situated experiences in the studies; and contextualized our stories within power structures. Using dialogic methods like duo ethnography [139] aligns with BFT [38]. Other work in HCI that leverages testimonial authority through methods such as duo and auto ethnography or episodic narrative interviews [136] include [66, 67, 140, 179].

Lastly, I shared my findings with our external evaluator to review and provide feedback on. She confirmed my understanding of the data and formulation of the findings. I also sent a short

slide deck and six-minute video sharing a summary of the findings with my collaborators for them to verify. One responded that she agreed with the results, and I am waiting on feedback from the remaining five. Next, I introduce the three CBPR studies that serve as my case studies.

The process writing this dissertation was uncomfortable at times for myself and Dr. Erete, as it required a level of vulnerability usually not involved in academic research. The collaborator interviews, intersectional analysis, and synthesis took almost a year to complete—largely due to the mental and emotional energy it required. The slow, iterative approach we took was necessary to understand the interplay between our research practices, our collaborators' experiences, and systems of power. We afforded ourselves time to process the discomfort that arose. Otherwise, we might have jumped to simplified conclusions and missed important lessons in order to avoid our reflexive "growing pains."

CHAPTER 5. CASE STUDIES

The case studies that comprise my dissertation are: 1) the civic technology forums; 2) the Street Peace mobile application; and 3) the My Chi My future initiative. Dr. Erete and I structured each study differently with respect to the intended and actual outcomes, the study's duration, the funding models, who initiated the projects, and resources each collaborator gained or expended. Table 5.1 provides an overview of the studies and their key characteristics in terms of the collaboration structure. This chapter provides additional context on each study.

5.1 Case Study 1: Civic Technology Forums

The civic technology forums consisted of two public workshops that we held in communities impacted by structural racism; our goal was to learn about residents' perceptions of, and priorities for, civic technologies in their communities. Civic technologies (e.g., open data portals, civic applications) are often intended to make cities more transparent, efficient, and responsive to residents [19, 164, 185]. However, despite the potential for civic technologies to improve urban life, researchers have raised concerns regarding their potential to increase social inequities [55, 180, 181] and reduce opportunities for building trust between residents and officials [9, 43].

Though there is a significant amount of research in HCI located in racialized communities related to forms of community engagement (e.g., [9, 56, 64, 118]), little work has been done to understand Black and Latinx residents' perspectives on civic technology design—even as civic technology is meant to be "responsive to the needs of citizens" [164, p.12]. To address this gap, we asked: *How do residents in racialized communities view the city's use of civic technology? What role do they think civic technology should play in their community's development?*

5.1.1 Background

Cities are progressively deploying new technologies and seeking ways to utilize data to improve city operations and services, increase civic engagement, and enhance the quality of life for their residents. The application of data, computation, and embedded systems in urban environments make up the ever-changing ecosystem of technologies driving this *smart city* agenda. As a broad category, these technologies use data analytics to address urban issues such as transportation, public safety, economic development, and environmental sustainability (e.g., rainfall, flooding, energy consumption) [96]. While the smart city is often discussed in terms of sensors and data, it is important to also include infrastructure (e.g., access to broadband) and social capacities (e.g., digital literacy) [31]. Within this expansive view, the public interfaces to the smart city are often referred to as *civic technologies*. These are the web applications, civic portals, open data repositories and other tools that leverage smart city data and make it available for public consumption [19, 164, 185].

Cities have long been sites of contested power. Urban planning has often been the primary means of enacting that power. Historically, political power has been contested through battles over infrastructure, zoning, and amenities [29, 106, 141]. As we move into the era of the smart city, the sites where communities contest access are expanding to the sensors, digital services, and data-driven governance that are driving urban policy. The shifting landscape of what constitutes basic urban infrastructure opens a new area of impact for HCI researchers and designers. In the case of smart cities, we are no longer just designing computational systems, but setting the conditions for civic and economic life as policy makers and municipal officials turn to smart technologies to inform everything from where to place road infrastructure [119], to how to measure and act on environmental conditions [122]. With this potential comes staggering implications for how the sensors, networks, data-driven systems, and human interfaces we build propagate or impede inequities [71].

5.1.2 Methods

Dr. Erete and a leader from a civic organization that focused on technology led this project. We have since lost touch with our collaborator and therefore refer to her with the pseudonym "Danielle." She and her organization were interested in learning what residents think are the most important gaps in technology access in their communities and how they think technology could improve their daily lives. She was particularly interested in hearing from predominantly Black and Latinx communities on the south and west sides because they are under-represented in the city's civic tech spaces. Dr. Erete initiated conversations about collaborating after Danielle gave a talk at DePaul University and found they had aligning interests. Through a series of meetings, Danielle, Dr. Erete, and I established our research questions and objectives for our collaboration.

We decided we would hold two public forums (i.e., workshops) in communities where Danielle had relationships with community leaders who could host the forums. One was a community-based organization (CBO) on the southwest side and the other was a church on the south side, both of which were integral to their communities. For the first forum (hosted by the CBO), there was one host who we worked with throughout the workshop planning (e.g., planning logistics, giving suggestions about the workshop design) and who led recruitment. She agreed to be interviewed for my dissertation. I refer to her with the pseudonym "Tracy." For the second forum (hosted by the church), we worked with two lead hosts and another 9 residents who were active in their communities to help us plan the activities, distribute promotional materials, and perform supportive tasks at the workshops (e.g., checking people in, facilitating table discussions). For this dissertation, I interviewed one of the lead hosts ("Ned").

I led the workshop design, data collection, and analysis for the tech forums study. The design process began with Danielle identifying her key objectives for the workshops and Dr. Erete identifying the research objectives, which I designed activities around. I presented drafts of the agendas to Danielle and our community research partners and made adjustments based on their feedback. Based on prior studies that recognized residents as local experts regarding their community's capacities [6, 102, 186, 192], we designed the study activities to understand residents' views on their

communities' assets, challenges, and the role of technology in their communities. Each forum lasted approximately three hours and included three activities: an icebreaker, a mapping activity, and a brainstorming activity. Participants sat in small groups, and each group had a facilitator to help answer questions about the activities and to record observations. Facilitators were members of the research team and residents—all of whom were trained prior to the forum and received materials to guide their interactions with participants.

Data Collection

I organized a team of undergraduate and graduate research assistants to capture audio, video, and written notes. Danielle's organization hired a professional photographer for publicity and research purposes. We collected 24 hours of audio and video recordings, photographs, sticky notes, annotated maps, filled out worksheets, and field notes. The data analysis process included Danielle, a Ph.D. student interning at her organization (Dr. Mark Diaz), Dr. Erete, and myself. Each member of the research team individually and inductively coded 20% of the content [45]. This resulted in 111 codes that we collaboratively merged and defined for a working set of 76 codes. Next, the other PhD student and I coded the entire data set using the final code book, while the other two authors reviewed the application of the codes to resolve discrepancies.

Participants

There was a total of 55 participants, with 14 attending the first forum, and 41 attending the second. Our community partners recruited the participants by sharing event information via digital and print advertisements as well as word of mouth. The number of participants in the second forum was greater due to multiple community partners leading the recruitment efforts. In compliance with our IRB, we did not offer financial incentives to participate in the study, but we did provide lunch catered by local businesses.

Of the 55 participants, 37 completed a demographic survey. Of the respondents, 20 (54%) identified as female and the remainder male. Participants' ages ranged from 26-56+, with a median

age range of 51 to 55. Household incomes ranged from less than $10,000 to over $150,000, and the average was $60-69,000 (however, nine people declined to answer). Participants self-identified their race; 25 (81%) were Black, three (10%) white, one (3%) was Latinx, and others did not respond. Education levels varied: two (5%) had high school diplomas or equivalent, eight (22%) had some college or vocational training, 16 (45%) had a bachelors degree, and 10 (28%) had a degree beyond a bachelors. In terms of experience with technology, 36 (97%) participants had used the internet for seven years or more, and one person had used it for four to six years. Almost half (18, 49%) of participants reported using a computer in their personal time, 20 (54%) reported using a mobile phone, and 10 (27%) reported using a tablet.

5.1.3 Findings

We found that residents saw value in civic technologies when the technologies aligned with pressing community issues and harnessed their community's existing assets (e.g., locally owned restaurants, parks, vacant storefronts that could be used to host pop-up events, residents' expertise) [54]. Most current implementations of civic tech, however, do not intentionally bridge assets to help build relationships and capacities within communities. Moreover, some current systems have regressive consequences for the community because they automate negative outcomes and remove clear lines of recourse [71]. Our findings align with the amplification model, originally established by Philip Agre [1] and extended by Kentaro Toyama [181], which asserts that if a community lacks the necessary social infrastructure and capacity to effectively implement a technology, the technology will amplify disparities [181]. Residents' responses in the workshops were consistent with this theory. They described how their community is being left out of a job market that increasingly requires digital literacy and technology access, which is not readily available in their schools or communities. Work investigating the effects of crowd-sourced technologies bears out their concern, because it shows that these technologies disproportionately benefit higher-income communities [176].

5.1.4 Contributions

This study makes two main contributions to the field of HCD. First, we provide additional empirical work that illustrates how technology alone cannot address social issues [55, 64, 193]. We argue for the need to move from a model where civic technology simply enables transactions between government and residents to a model where it is designed to mobilize community assets. Doing so requires supporting stronger relationships among residents and with government by leveraging local capital and addressing not just an access divide, but the participation divide that extends through civic technologies [9, 42, 82]. For civic technologies to promote equity in cities with acute segregation and disparities, I suggest foregrounding the role of trust and accountability in their design and integration. Drawing on recent work that examines trust in other racialized communities, fostering appropriate levels of trust involves initiating, building, and sustaining relationships within communities, as well as between communities and their representatives in the governance process [42, 43].

Second, I share the potential that residents from racialized communities saw for using civic technologies to respond to harm that has resulted from systemic racism (e.g., residential segregation and displacement [75, 107, 127], public and private community disinvestment [121, 188], mass incarceration [2, 125], and high levels of street violence [26, 93]). Building on the growing literature in assets-based design [23, 54, 102, 191, 192], this study's findings suggest that local assets within communities can provide a basis for shifting from a deficit model of civic technology to an approach rooted in extending and amplifying existing strengths [181]. We need to move beyond a deficit model of civic technology intervention, which often focuses on addressing symptoms of the systemic effects of historic conditions. By collaboratively connecting and building upon existing capital in communities typically characterized by what they lack, we can foster local capacities and relationships to amplify communities' strengths and develop community power. For example, an alternative to deploying an anonymous crime-tip app that residents in the second forum were concerned was not secure, and which could perpetuate over-policing in their communities, designers could build on efforts by local community organizations and residents to prevent crime and

increase employment opportunities [143]. While these recommendations have roots in design traditions like participatory design [138], they seek to go further than simply identifying and sharing assets, and instead make more explicit the need to mobilize those assets as a vehicle for effective civic technology policy and implementation.

5.1.5 Outcomes

A key outcome that came from this study was that Danielle's civic organization developed a funding model for small, community-based technology organizations to apply for grants. Consistent with the lesson about leveraging assets and building capacities, the grant process included coaching by technology experts (including the PI) through the proposal writing process. Furthermore, the board of advisors for the grant leveraged assets they had access to in support the chosen applicants' proposals, such as Dr. Erete providing University space and equipment for a recipient to host classes on cyber security for residents of disinvested communities. In the workshops we observed people network and share information with each other, such as about how to use the city's open data portal to pressure local officials. After concluding data analysis, presenting a poster at CHI on the work [53], and getting a paper accepted to CSCW [54], I created an information sheet and short white paper to report the findings and news about the grant program back to our host organizations in print and digital formats. The church that hosted the second forum invited Dr. Erete to come present the work, which she did. Due to our professional responsibilities and both dealing with family responsibilities (e.g., child care, parental leave, elder care), we were very delayed in returning the outcomes to the communities. It took us two years after the workshops to send them the flyers and report. The hosts from the second forum continued conversations with us about creating a plan for their community, but the work did not develop into another collaboration. We have however stayed in touch and offered support when possible (e.g., helping them make connections, giving feedback on their plan).

5.2 Case Study 2: Street Peace Mobile Application

The Street Peace study was a two-year CBPR engagement with a street outreach organization in which we collaboratively designed, built, and deployed a mobile application (the *Street Peace* app) to support street outreach workers (SOWs). Street outreach is a violence prevention model in which organizations hire residents with local relationships and expertise to mediate potentially violent conflicts in their communities and address underlying issues that can contribute to harmful behavior (e.g., lack of employment, mental health challenges, trauma) [26, 28, 93]. The role of technology in street outreach has recently emerged as an area of focus in sociology [142], while related work in HCI addresses other forms of community violence prevention, such as facilitating collective action and grassroots online information sharing [4, 63, 64]. This study fills a gap in the HCI literature by addressing community-driven alternatives to policing, such as street outreach.

Prior research we conducted with our lead partner (whom I refer to as "Jeremy" in this dissertation) identified an opportunity for a mobile application to support outreach workers' training, mediations, community building, and communication during emergencies [70]. Based on those findings, we collaboratively designed, developed, and integrated the *Street Peace (SP)* mobile app [52]. I led the visual and interaction design of the app and developed two research questions that I explored in pre- and post- interviews with SOWs. Focusing on the social feature of the app, I asked: *How will connecting teams of street outreach workers through a mobile application impact their social interactions and ability to mediate conflicts? What types of resources, if any, will be shared through the application?*

5.2.1 Background

Chicago has struggled with high rates of community violence for decades, which is an effect of racist policies that have created segregated cities and towns where opportunity, wealth, and resources are concentrated in white communities; while poverty and incarceration are concentrated in Black, Latinx, Indigenous, and some Asian communities [3, 49, 75, 113, 121, 188]. In the first

six months of 2018 (when this study took place), 1,433 people were shot and at least 246 killed in Chicago [25].

One community-based method for lowering rates of interpersonal violence is the preventative and non-punitive practice of street outreach, which is a fundamentally different model than traditional policing. Street outreach organizations hire and train residents who were previously involved in cliques or street gangs to mediate conflicts that could otherwise lead to violence. These street outreach workers (SOWs) address the immediate threats of interpersonal violence by leveraging their relationships and credibility in their communities to learn about conflicts and peacefully intervene. Some SOWs are similar to social workers in that they have a caseload of "participants" with whom they work to address underlying factors (e.g., lack of employment, mental health challenges, trauma) that can contribute to violent behavior [26, 28, 93].

The street outreach violence prevention model [50, 167] is practiced by nonprofit organizations locally and globally [32, 100, 131]. Some U.S. city governments, including Chicago, are beginning to integrate street outreach into their public safety approaches [22, 101, 134]. Independent evaluations have found that the street outreach model is effective in lowering violence rates [126, 159, 166]. For instance, a 2014 study determined that a street outreach program reduced homicides by 31.4% in the targeted communities, compared to a 24.1% drop city-wide in 2012 [92]. Some have criticized the approach, stating that it is difficult to determine its effectiveness due to confounding factors. Despite this concern, there is agreement that street outreach is a promising and cost-effective technique for preventing violence [28]. Furthermore, street outreach is an important violence prevention model because it takes an assets-based approach [54, 115, 189] to stopping violence, in which SOWs leverage their social resources (e.g., respect, trust, credibility) to mediate conflicts and build supportive communities that counteract structural oppression.

5.2.2 Methods

Over the course of 18 months, the academic team (Dr. Erete, several research assistants, and I) and our collaborators from *Street Peace* (a pseudonym for a global street outreach organization)

co-designed [160], developed, and implemented the SP app. We deployed the application for three months with 56 SOWs and staff from six different sites[1] belonging to three organizations. We collected data through pre- and post-deployment interviews, surveys, and usage logs.

I worked closely with Dr. Erete and our community partners through the project and led our team of research assistants through the design process, app integration, and qualitative research. Our community partners included the community PI, Jeremy, who had worked as an on-the-ground SOW for four years before moving into the organization's administration, where he established street outreach teams in several U.S. and international cities and provided training and technical support to implementing agencies. Through his extensive experience in street outreach he identified opportunities for technology to support SOWs and understood how such a tool might integrate into their practices, leading him to approach Dr. Erete with the SP app concept. The other lead collaborator was Giada (a pseudonym), who also worked as a SOW before moving into the SP administration, where her role included conducting mediation training and managing the organization's database that stored decades of data on mediation strategies. Our team spent over one year establishing a relationship with each other through the initial research and co-design process, prior to the deployment of the application and interviews included in this dissertation. The co-design process consisted of weekly in-person meetings and/or phone calls for over two years.

Together we designed the SP app (see Figure 5.1) to support SOWs' training, mediations, community building, and communication during emergencies. The connect feed was the social media feature that enabled SOWs to connect with other SOWs at different organizations using a private, secure network. Users could post messages and photos, comment on each other's posts, "like" posts, and send private messages to each other.

Beyond involving Jeremy and Giada in the design process, we also elicited feedback from SOWs. After we designed the high-fidelity interactive prototype, we presented it to a focus group of 14 SOWs for feedback. The application initially did not have a social feature (i.e., the "connect

[1]A 'site' refers both to the community area where a team of SOWs targets their outreach and violence prevention efforts, and the physical office where SOWs gather daily to discuss any conflicts that they are mediating, do data entry and paper work, and share any community news.

feed") due to privacy concerns expressed by the preliminary interviewees. However, the focus group insisted that a social feature would be key to their engagement with the app and would support their connection with other sites. Based on their feedback, we added the "connect feed," which proved to be the most-used feature. To address SOWs' privacy concerns and to comply with our IRB, we made the SP app only accessible to SOWs who participated in the study and we trained SOWs not to share any sensitive information through the app.

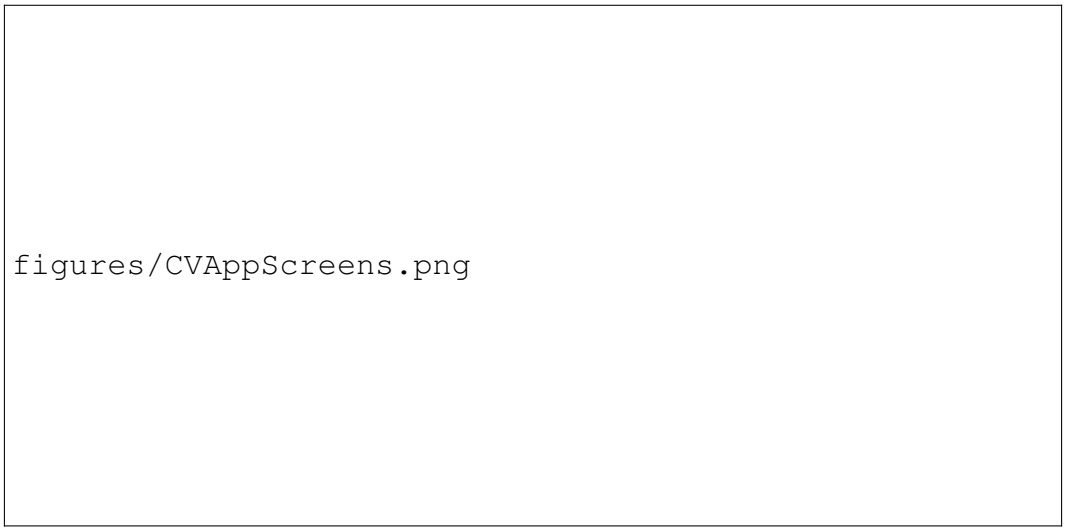

Figure 5.1. The design of the four features of the Street Peace (SP) mobile app for Android, from left to right: the connect feed, the training room, the mediation guidance tool, and the alert.

We trained 43 SOWs and staff from four different sites in two separate sessions on the SP app. The training consisted of a 3-hour session in which Jeremy explained the different features of the app, shared protocols for using it, and presented 11 scenarios that SOWs might encounter, asking them to discuss how they might use the application in those situations. The purpose of this exercise was to help participants understand how to integrate the application into their work and to clarify important protocols for using the app in order to protect sensitive information (e.g., details about mediations). For SOWs who were hired after the initial in-person training, we provided a handout that explained the main features of the app and highlighted safety and privacy considerations, and we went to each site in-person to answer any questions they had about the application.

Data Collection and Analysis

We held interviews before and after the app deployment at the SOWs' sites during their working hours. To mitigate the power imbalance between the researcher and interviewee (Harrington et al., 2019; Vakil et al., 2016), the interviewers used a conversational style and made space for any stories SOWs wanted to share, even if they did not directly relate to the interview protocol. I conducted the majority of the interviews. The pre-deployment interview protocol explored any initial app usage, SOWs' in-person experiences with other SOWs, and their processes for mediating conflicts. The post-interview protocol focused on the experiences SOWs had with the app and their ideas for improving it, as well as how the app influenced in-person interactions (if at all) within and between sites and organizations.

I led two research assistants through the qualitative data analysis process, using inductive and axial coding to analyze the 36 interviews (Strauss & Corbin, 2014). No SOWs contributed to the analysis due to time and funding constraints. Instead, we presented our findings and themes and SOWs gave feedback on whether our interpretations represent their lived experiences.

Participants

Of the 56 pre-survey responses, we selected 18 SOWs for pre-and post-interviews who represented a variety of experience levels with technology and street outreach. All but one of the interview participants identified their race as African American/Black, with one declining to say. Only one female SOW participated in the interviews, and although this ratio reflected the pre-survey data, it limits our ability to understand women's experiences as SOWs and with the app.

5.2.3 Findings

Results suggest [52] that the app supported SOWs' transformative justice practices to build a counter-structure [7] to traditional policing, which is historically violent and oppressive to Black communities. The SOWs used the app to mediate potentially violent conflicts without police involvement, build community through in-person events, and extend their communities of care

through positive stories and narratives that countered harmful stereotypes about Black criminality. By affording SOWs more agency over their communication with each other, the app enabled SOWs to connect their strengths and scale their existing practices that combat structural oppression and prefigure liberatory futures.

5.2.4 Contributions

This study offers two main contributions to the design justice literature [7, 46, 103, 187], which centers communities who are building systems that counter the matrix of domination (i.e., interlocking systems of white supremacy, heteropatriarchy, capitalism, and colonialism) [38]. First, we demonstrate how formally organized, but disconnected, groups of people who are targeted by State violence can extend their practices of countering violent structures and building communities of care [16] by using a mobile technology to connect their strengths and share emancipatory resources. This extends literature that explores participation in grass-roots counter-structures [8, 145, 172] as well as in asset-based design [54, 77, 144, 158, 190, 191]. Second, we contribute to the literature in violence prevention in HCD [4, 63, 64] by providing an example of an implementation of a technology designed to support street outreach workers and offer implications for designing technologies to support formally organized counter-structures.

5.2.5 Outcomes

As planned in the beginning of the project, Dr. Erete transferred the intellectual property (IP) of the app to Street Peace as well as the development code so the organization could continue to maintain the software. The IP process required signing over the IP rights through general counsel for DePaul University and the Street Peace organization. However, because Street Peace shifted its organizational model, they decided to not put additional resources into the app. We delayed disconnecting the server for six months after the study in hopes that the organization would take over the server costs, during which time some SOWs continued to post to the connect feed. The SOWs who had "loved" the Street Peace app were quite disappointed when they learned we would

not be maintaining it indefinitely. We regret the harm we caused by raising SOWs' excitement about a tool that was discontinued, but we hope that the insights generated from this study can be applied to other tools to support their transformative work in the future. A tangible benefit the intervention provided was that it helped the organization raise funding to hire additional SOWs. Following the completion of the study, we returned to the sites to share a meal, present our findings, and answer SOWs' questions about the intervention.

5.3 Case Study 3: "My Chicago My Future" Collaborative Qualitative Analysis

In this case study I present a process I developed to collaboratively analyze the ideas and insights gathered from the My Chi My Future (MCMF) initiative on Chicago's west side. MCMF aims to make enriching out-of-school opportunities more accessible to young people from communities that have experienced systemic disinvestment. This CBPR engagement was an extension of work our community partner ("Natalie," who leads a youth STEM organization) had been doing to understand her community's out of school ecosystem with the goal of identifying gaps and connecting existing resources. A mutual connection brought Dr. Erete and our research team into the initiative, which also involved Northwestern University and the City of Chicago. For over two years, we worked closely with Natalie (a pseudonym) to co-design and implement the initiative through a series of workshops and working groups. Although Dr. Erete and I have since moved away from Chicago, we are still collaborating with Natalie. She and her community are continuing the work, supported by a community governance structure that does not rely upon our involvement. Given the objectives, scale (community-wide), and duration of this CBPR engagement (i.e., longer-term than the academic team could commit to), it was important that the community drove the direction of the work.

In this section, I describe a process that I developed to involve community partners in analysis while minimizing the burden on their time and producing findings relevant to their goals. Together we analyzed and synthesized the ideas, insights, priorities, and feedback that workshop participants shared over the course of five MCMF workshops. This analysis approach counters the traditional

academic paradigm for "producing" knowledge that consists of academic experts extracting "data" (i.e., stories, knowledge from lived experience) from participants, then processing it into "findings" that are legitimized as knowledge by other academics through peer-review and are not brought back to the community [99, 148, 168]. Through this study I explored the following research questions: *1) How can we incorporate lived and domain expertise into the knowledge production processes of research? 2) What are the challenges and trade-offs to integrating different forms of expertise into an academic analysis process?*

5.3.1 Background

Developing a robust learning ecosystem requires researchers and other stakeholders to understand the role of informal learning [83, 149]. High quality out-of-school time (OST) experiences can positively impact participation and learning. For STEM content areas, studies have shown this is particularly important for youth from communities with histories of disinvestment [72]. The west-side community in this study has been shaped by racist policies (e.g., the construction of a highway that bifurcated the community, concentrated incarceration) and therefore deals with high levels of poverty and violence; however, there is a wealth of community groups working to counter these impacts and heal their community. Given that OST is fundamental to youth development, it is critical that stakeholders have a holistic view of local learning opportunities across space and time, which includes (but is not limited to) afterschool programming, summer programs, church, sports, and tutoring.

In this initiative, we worked with our collaborators to develop a holistic view of the OST ecosystem by gathering data about what physical spaces, technologies, and programs exist in the community, using GIS to map these resources to see the geographic distribution (with overlays of other data such as heat maps of where violent crime is concentrated), and working with community members (e.g., program providers, youth) to interpret the geographic and programmatic data. The goal of this work was to identify ways to connect existing programs (e.g., through referrals for students, sharing resources between programs) and to determine what topics new programs should

focus on and where they should be located within the community. However, the focus broadened through the workshops based on workshop attendees' suggestion that the initiative should support families holistically instead of solely focusing on OST (which was in part due to the COVID-19 pandemic).

5.3.2 Methods

Our goal for the co-analysis was to integrate the workshop data into a proposal for how the Mayor's Office could best support the community's young people and families. I developed a team of five community researchers and four academic researchers (the *"A-team"*) to analyze the ideas and information that 111 workshop participants shared in five workshops over the course of the year (66% of participants attended more than one workshop). Residents and/or people from community-based organizations (CBOs) (e.g., youth providers, street outreach orgs.), associations (e.g., churches, block clubs), and city agencies (e.g., parks, libraries) participated in the workshops. We held four of the workshops in-person and one virtually due to the COVID-19 pandemic. We co-designed and facilitated the workshops with Natalie and her colleagues to foster collaboration, elicit both shared and divergent thought, and leverage data in service of community-identified goals for young people and their families. Next I summarize the workshops themselves before explaining the co-analysis process in more detail.

MCMF Workshops

Natalie led most of the workshop activities, with Dr. Erete leading some, and I stepped in when needed. We documented workshops through ethnographic field notes as well as artifacts workshop participants created, including worksheets and sticky notes. We recorded the virtual workshops (held on Zoom) and saved the transcripts and chat logs. DePaul's team of research assistants synthesized brief summaries of the activities and findings after every workshop, which we shared with the people who attended the workshops via email as well as with our collaborators in the Mayor's Office. Workshop activity activities included:

- Creating a shared vision for an equitable OST landscape, shared language, and identifying barriers to collaborating.
- Sharing data visualizations (e.g., maps) and raw data on OST programs, locations, street violence, and walkability.
- Community networking and information sharing.
- Brainstorming changes to current policies, practices, and collaboration structures.
- Forming smaller core working groups of stakeholders to move the work forward in different areas, including discussions about applying for funding to support implementation.

Forming the "A-Team"

To co-analyze the 682 pages of data (i.e., ideas, resources, feedback, criticisms, stories captured through field notes, call transcripts, and written workshop artifacts), we recruited five community members who were actively engaged in the workshops and facilitated workshop table discussions to form the *"A Team"* (a name the group chose). We compensated them with $300 gift cards for six hours of their time over two months. These were people who had either grown up in the community and/or currently lived there and had experience working with young people. Through a series of two 2.5 hr meetings, two surveys, and email exchanges, the A Team determined research questions of their own, finalized a qualitative codebook containing 159 codes, collaboratively analyzed and interpreted portions of the data, and synthesized the data to determine the direction of the initiative moving forward. Next I share the two phases of the co-analysis process.

Co-Analysis Phase 1: Drafting a codebook

In our first meeting, the A Team identified their own research questions, we (the research team) gave a short presentation about the coding process, and we shared the first draft of the codebook. Two research assistants and I created the first draft by inductively coding 15% of the data, merging duplicate codes, and categorizing the codes (resulting in 138 codes and 13 categories). After giving

the A Team time to review the codebook in the meeting, we used a series of open-ended prompts to structure the feedback process. Prompts included: What do you notice about the codes? Are there any codes or categories that are particularly interesting? Is anything missing or wrong? Would you add anything? The A Team edited the codebook (e.g., adding codes for youth development, public schools, and quality of life). Through this process they created 10 new codes and edited the definitions of 10 existing codes.

To give the A Team context on how we would use the codes, and to develop a shared understanding of the codes, we discussed one excerpt of data and how to code it. With the A Team's new codes the codebook consisted of 148 codes and 13 categories. The A Team also developed a set of 9 questions that they wanted to explore through the analysis that addressed a wide-range of topics including: roles of different stakeholders in building a connected ecosystem; supporting youth development and interests; addressing root-causes of harm (including institutional failures) rather than just symptoms; and bridging social structures within the community through the initiative. One challenge we found in eliciting community research questions was that the questions were very forward-looking and did not all relate to the data we had collected.

Co-Analysis Phase 2: Iteration and Analysis

In the second phase, the researchers edited their code applications on the first 15% of the data using the revised codebook and coded an additional 60% of the data. Initially we planned to code 100%, but did not have enough time, so selected a sample of data from each workshop to comprise the 60%. Each researcher coded a third of the data and checked the code applications on the other two-thirds; we settled code discrepancies in meetings. Through the coding process we sent the A Team two surveys with data excerpts to code. We sent the first survey after we edited the codes on the 15% of data. We chose excerpts on which we had disagreements about how to code, needed more community context to understand, and that related to common themes we were noticing in the data. We incorporated the A Team's responses into the codebook, resulting in a final codebook of 159 codes. We sent the second survey when we were mid-way through coding the 60% of

the data to verify that we were applying the codes correctly and get the A Team's input on any unclear passages. Once we completed the coding, we mapped the codes to the A Team's research questions.

We reviewed the data by question to draw out themes and create the A Team findings, which included: 1) taking a bottom-up and collaborative approach to initiatives such as MCMF can help shift and expand the initiative's framing to address "root causes," but this process takes time, dedication, and investment; 2) connecting the OST ecosystem will require social, technological, and physical infrastructures through which groups can build on each other's assets by sharing information, collaborating, and stewarding youth through the ecosystem; and 3) trust, transparency, and accountability need to be fostered to engage providers, families, and youth in connecting the OST ecosystem, especially when institutions with histories of harm (e.g, Universities, the Mayor's Office) are involved in the process.

5.3.3 Findings and Proposal Development

We synthesized the findings with the A Team in the second meeting. Our goal for the synthesis was to integrate the findings into a proposal for the Mayor's Office. We presented the findings pertaining to the A Team's research questions and shared a list of the most commonly shared community goals in the data (collaborate and share resources, make it safe for youth to be youth, make programming more accessible to youth, and improve training and professional development). Given the time constraints, we (the research team) developed a set of "starter proposals" for each of these goals by drawing from "solutions" workshops participants had proposed. Based on our findings and the A Team's community expertise, the A Team chose to develop a proposal to create a "hub" of resources for the community to facilitate collaboration and resource sharing. We discussed what form(s) the hub would take, the kinds of resources it would offer, how the city could support it, and what the governance model would be.

The research team then synthesized the A Team's ideas and workshop data into a two-page proposal for the city. The A Team reviewed and edited the proposal. To engage the broader

group of workshop attendees in making the final decision for the directions of the initiative, the A Team presented the concept of developing a web of hubs, along with other possible directions that we discussed in a workshop. The community members agreed to focus on the hub proposal and formed three working groups focusing on mental health, youth involvement, and the hub itself to work toward building a "hub of hubs" over the following year. To distribute power within the initiative going forward, we worked with Natalie and her team to develop a steering committee who participated in our calls to plan the workshops. This served to remove pressure from Natalie to make all decisions regarding the workshop objectives and democratized the leadership process.

5.3.4 Contributions

In Cooper et al.'s (2022) systematic literature review, they presented no examples of CBPR studies in which the community partners participate in analysis [41]. The A Team co-analysis project addresses this gap. We offer an example of how community expertise can be incorporated into analysis while not creating an epistemic burden [148] by designing the process to be efficient and tailored to the community members' interests and goals. It was critical that the findings we generated were specific to the local community context and led to concrete outcomes. By prioritizing the community contributions over academic [118] and incorporating lived expertise into analysis we resisted epistemic gatekeeping [39]. Although this co-analysis process does not radically re-imagine the established qualitative method of inductive coding, it begins to de-center the view of the academic researcher and creates an opening for further interrogation into our processes for creating and legitimizing knowledge in HCI. We therefore contribute to literature that pushes for non-academic forms of knowledge or expertise to be valued in HCI [67, 148, 154].

5.3.5 Outcomes

The Mayor's Office of Chicago provided the community with funds to execute their proposal for a community hub. The working groups and steering committee continue to meet even though DePaul is no longer actively engaged in organizing, designing, and facilitating the workshops or meetings.

Dr. Erete and I continue to collaborate with our partners from this initiative remotely however, and plan to submit articles for publication on the work together. We collaboratively decided to direct funding to disseminating the work through academic publishing and a website, Natalie's organization received funding to host 6-8 more workshops, and Dr. Erete's university is providing her time and design services.

Study Dimension	Case Study 1	Case Study 2	Case Study 3
Objective	Understand resident priorities for civic tech	Support street outreach practices	Connect the community's resources for families
Collaborators	Ned & Tracy	Giada & Jeremy	Brendan & Natalie
Who Initiated	Researchers & Civic Org	Jeremy	Natalie
Methods	Design Workshops Asset Mapping	Interviews Surveys Focus Groups Co-design	Design Workshops Asset Mapping Collaborative Analysis Co-design
Participants	Community residents	Street Outreach Workers (SOWs)	CBOs & Residents City Agency Reps
Study Duration	5 months (2017)	2 years (2016-2018)	3 years (2019-present)
Communication	Bimonthly meetings/calls	Weekly meetings/calls	Weekly meetings/calls
Funding Sources	City University	Federal & State Philanthropic	University & Corporate City & Federal
Collaborators' Investment	Recruiting Relationships Local expertise Physical space Design guidance Hosting	Recruiting Relationships Local & SO expertise Physical space Design guidance Advocacy for app Grant writing Connections w/funders Paid staff time	Recruiting Relationships Local & OST expertise Physical space Design guidance Advocacy for initiative Workshop facilitation Grant writing Paid staff time
Participants' Investment	Three hours on a Sat. Stories and expertise	SOWs' time Stories and expertise Time on app Feedback on app	Time at workshops Time on co-analysis Stories and expertise OST program data
Academic Investment	HCI expertise Supplies & food Facilitating & Organizing Micro-grant support Analyzing & reporting	HCI expertise Grant writing Personal funds for food Facilitating & Organizing Analyzing & reporting	HCI expertise Grant writing Supplies & food Facilitating & Organizing Analyzing & reporting
Community Benefits	Micro-grants Opportunity to network	Grants SP App (discontinued) IP of app & code	Grants Funding for hub Connecting assets
Academic Benefits	Publications [53, 54] Funds for students "Real-world" learning Resume building	Publications [52, 70] Funds for students Awards [52] "Real-world" learning Resume building Relationships	Publications [69] Funds for students "Real-world" learning Resume building Relationships

Table 5.1 Summary of the three case studies.

CHAPTER 6. HOW SYSTEMS OF POWER SHAPE COLLABORATIVE COMMUNITY BASED PARTICIPATORY RESEARCH

The findings in this chapter respond to RQ1: *How do dominant power structures, epistemologies, and narratives manifest in HCI collaborative HCI research?* In this chapter, I present how capitalism operated through the structural and disciplinary domains or power to organize our labor and incentivize extractive research practices. Second, I share how structural and disciplinary domains of power enforced western epistemology and the ways in which we resisted it. Lastly, I explore how intersectional narratives (i.e., regarding race, class, gender, etc.) manifested in the work and how we navigated them.

Across both findings chapters (Chapters 6 and 7), I examine how systems of power operated through the four domains of power: the structural (i.e., interlocking institutions), disciplinary (i.e., the enforcement of rules within an institution or discipline), hegemonic (i.e., cultural narratives that uphold and obscure power structures), and interpersonal (i.e., between individuals) [38, 39]. There are fewer quotations from my collaborator interviews in sections where I draw more heavily from my duo ethnography with Dr. Erete. In sections with quotations, I chose to present our collaborators' thoughts as completely as possible to respect them as agents of knowledge and resist epistemic silencing [39].

6.1 Organizing Labor

Across the three case studies, capitalist pressures to produce academic outcomes informed how we structured the studies and organized our labor, time, and funding. The ways in which we responded to capitalism in our work shifted over the course of the three case studies. As we secured our positions within structural and disciplinary domains of power, we began to resist those domains' pressures to conduct extractive research.

6.1.1 Incentives for Extractive Research

The results of my intersectional analysis indicate that capitalism worked through the structural and disciplinary domains of power to incentivize us to use an extractive, parachuting CBPR model in Case Study (CS) 1. Parachuting research is when a researcher drops into a community to collect data to answer their research questions, and does not make a significant (if any) contribution to the community [157]. Using this research model left our partners unsatisfied with the project outcomes. In Chapter 7, I expose how we might have caused harm to their relationships with community members by not producing tangible outcomes from CS 1.

When we conducted CS 1, Dr. Erete was untenured and received feedback in annual reviews that she needed to spend less time on community work and more time on publishing. Professors have to secure grants and publish their work in peer-reviewed venues (which have their own capitalist structures and embedded racism [37, 59, 88]) to keep their jobs and advance professionally. They are expected to reproduce their labor and maximize publications by training a labor force of research assistants (RAs). Recruiting students who have writing skills, interpersonal skills, and ideally diverse life experiences within power structures (e.g., race, class, disability, gender) requires university resources. Financial support for student researchers varies across universities, and in our case was limited because our university has less of an emphasis on research.

The availability of students who are able to pay tuition at an undergraduate or graduate school while working a low-wage job as an RA is another capitalist constraint. Training these students to conduct research in community settings laden with past and current power imbalances [61, 87, 118, 148] is a labor-intensive process. For researchers from institutions with less structural support for research and more of an emphasis on teaching and university service, preparing students to do community work adds an additional strain to their workload. Cultivating relationships with potential community partners also requires significant labor [87], which is usually not recognized by tenure review committees. Though not conscious of it at the time, these structural pressures motivated Dr. Erete to engage in a short-term parachuting study in CS 1 and to prioritize publishing the research over working with community members to co-design a meaningful outcome from the

work.

Community-based organizations (CBOs) also experienced structural pressures to produce certain outcomes from their labor, which at times conflicted with the outcomes we as academics were required to produce. Granting agencies and donors typically require measurable community impact, which is not a metric that researchers are evaluated by. CBOs are also accountable to their communities, and usually depend on their relationships with residents to do their work. If community members do not experience meaningful change from the CBOs' work, they are unlikely to engage with the organization in the future (which is a topic I explore further in Chapter 7). The organizations therefore depend on positive, measurable outcomes to continue to secure funding and maintain their relationships with community members.

Conversely, the publications (often referred to as "currency" in the academe) that the structural domain of power requires academics to produce holds little value for CBOs. Academic outputs *might* produce value for the organization *if* they are included as co-authors on publications and co-PIs on grants. Building a publication and grant record can make it easier for them to win grants in the future. However, these benefits only result from work that is co-created with community partners and aligned with their organization's priorities.

6.1.2 Time and Funding

The institutions (i.e., structural domain of power) that funded the case studies had a large impact on how we we allocated our time and whose time we compensated. This, in turn, put constraints on our interactions with community members and the studies' results. Brandon (CS 3) shared his experiences trying to get teams to slow collaborative research down in order to include community members who might be harder to connect with (e.g., young people, unhoused people, people working multiple jobs).

> *My involvement [in projects] usually includes a fight against over-efficiency. Because sometimes efficiency breeds like this, this kind of mentality of, 'how do I do this the easiest way?' And that can lead to inauthenticity. And it can lead to [..] trying to kind*

> *of cut corners and talking to the people who are easiest to talk to, which has negative outcomes in the long run, but can save you time on the front end.* Brandon, CS 3

Case Study 1

Regrettably, Brandon's quote describes the type of efficient approach we took to engaging with the communities in CS 1 due to the pressure on Dr. Erete to publish and because of funding constraints. In CS 1, we used Dr. Erete's start-up funds from DePaul University to pay for research assistant labor, workshop supplies, and the food we had catered from local restaurants. We did not have funding for the community hosts or workshop attendees.

Although there was no funding for our collaborators in CS 1, Danielle's position within the structural domain of power (being from an organization connected to a civic trust) may have influenced our collaborators' decision to participate. Tracy (CS 1) said that, although our study did not align with her organization's strategic goals, she could see value in the work and how it *"**might** produce a win"* for her community, so she participated. Because it was an unfunded study, she donated a considerable amount of time to the work (referring to it as *"philanthropy"*). She explained how she would have structured her participation in the project differently (including requiring funds) had she known how much time it would take:

> *The whole idea of getting this information, having these group meetings [was] beyond the purview of my organization or my professional, you know, mission, right? So the idea is not a synergistic goal, from the beginning, it is a more of a philanthropy goal on our end. [..] I keep referring back to this time thing, it's like we want to give it, we know it's important, we want to do it, it's just, it absolutely is a time sucker. And if [the project goals don't align], then the organization needs to understand that this is an extra in a way, where the organization can be compensated for that. Because what we would have done differently, I think, is that we would have assigned someone else, a third party that maybe we hired to help us gather and do that work, as opposed to me being the lead. That's the only thing I would say, you know. So I'm not trying to be pushy about it or be demanding, but in retrospect, the mechanics of it all, you know the developing a process and implementing a process around something that's not a strategic [goal] for us requires work, and requires time spent.* Tracy, CS 1

The cultural narrative (hegemonic domain of power) that nonprofits and community groups do selfless work for the greater good of society can create an expectation for them to provide their time

without compensation for the sake of the cause. For instance, Ned (CS 1) described his community work as a *"labor of love,"* and Tracy (CS 1) referred to her work as her *"life's calling."* As suggested by Tracy's statement above, our cultural valorization of sacrifice can make collaborators feel uncomfortable advocating for financial compensation. This narrative can normalize labor practices that cause epistemic burden [148].

When we asked our collaborators what their advice for future work would be, Tracy and Ned (both from CS 1) brought up compensation for the community's time. Although Tracy and Ned felt that the report we wrote was important, it did not bring about long-term impact or any commitments to enacting the report's recommendations. Ned said that in the future, collaborative studies with his community should be funded and should build off of the work the community has been doing for years.

> *You need to have a number of not necessarily technical skill people, but people who are willing to, what's the term, put some skin in the game, really realizing that some of us who have been here long enough, that it is not going to be done within a couple of weeks a couple of months, these are multi-year-long projects.* Ned, CS 1

In CS 1, before Dr. Erete had tenure, due to structural pressures we prioritized publishing a poster and paper [53, 54] before we wrote the report for our community partners. Combined with a delay due to a maternity leave and other personal factors (providing elder care, child care, and grieving the losses of our mothers), it took us two years to complete the report and flyers. Although our collaborators from CS 1 (Tracy and Ned) expressed appreciation for the report, they were rather underwhelmed because reports do not generate a felt impact for participating communities (which I explore in greater detail in Chapter 7).

Case Studies 2 and 3

The collaborative approach that Ned recommended is similar to how we structured Case Studies 2 and 3, in which we delayed publishing and prioritized doing the community work. We created more community impact and strengthened our relationships with our collaborators in the process.

In Case Studies 2 and 3 we had funding, which required us to navigate the structural domain of power with our collaborators. Capitalism worked through the structural domain of power to influence how we organized our labor within the studies.

Collaboratively applying for funding helped to establish Dr. Erete's relationships and trust with Jeremy (CS 2) and Natalie (CS 3). The process involved Jeremy and Natalie explaining the philanthropies' unstated expectations to Dr. Erete. These expectations required that we translate and tailor our goals into outcomes that the funders would understand and value, which is an example of how the structural domain of power organized our labor and impacted the project outcomes. Jeremy described the process of navigating the structural domain of power with Dr. Erete as a bonding experience and a sign that she was equally committed to the work.

> *You know here's the thing, like I mean when we started when we started these conversations, there was no money. You know what I mean [laughing], like this is a space I've been in, especially in the innovation side of things–you come with an idea, there's no money, you're trying to pitch your vision to people, you know what I mean, some people get it, some people don't. I mean, like, how many grants she was writing, like we were equally vested partners raising money for this thing. So, like you know from the dirt from nothing, you know what I mean, you just have more respect and more appreciation, you know, for something.* Jeremy, CS 2

In CS2, the funding supported street outreach workers' salaries, student workers, and the app development costs. Street Peace was reliant on unstable funding from philanthropies and the state (which was experiencing a budget impasse at the time) and they had recently been through a period of layoffs and site closures. The study funding was critical to maintain street outreach jobs. However, we were prohibited by the organization from providing financial incentives to participate in the study. Doing the study in the context of a workplace exercised capitalist power dynamics because workers' supervisors asked them to participate, which may have created pressure to join the study even though it was optional. The study required additional labor from SOWs to use the app, fill out surveys, and participate in pre- and post-interviews, all of which took time away from their jobs without compensation.

Funding came up the least in the CS 3 interviews, which was the project with the longest-

term funding. The project emerged from an NSF grant that the community PI (Natalie) secured in collaboration with Dr. Erete's colleagues. Subsequently, Natalie and Dr. Erete secured funding from DePaul University, the Mayor's office, and Google to pay Natalie's organization and students. Similar to CS 2, the process of applying for grants in CS 3 was important for building collaborator relationships, trust, and a shared vision and values for the work. The funds enabled us to execute a truly collaborative study by including community members in analysis.

The funders in CS 2 and 3 had a large impact on how we structured the collaborations, what (and whose) work we compensated, and which outcomes we prioritized due to grant requirements and the resources they chose to provide. The funders included public and private foundations, the Chicago Mayor's Office, and participating universities. The funding sources that followed a more capitalist model (i.e., private philanthropies that are sustained by private donors) and their officers held more power over the research goals and outcomes than the university and public funding sources, which were more flexible about what the funds were spent on and the outcomes of the work.

In CS 3, being funded by NSF, the City, and our university afforded us more flexibility in terms of how we used our funds than in CS 2, which was funded by private philanthropies. The philanthropies required us to identify and measure unrealistic outcomes, such as reducing shootings or changing mediation tactics through the three month deployment of a mobile application. The public (i.e., city, NSF) and university funding in CS 3 enabled us to include our collaborators in analysis because we could use the funds to compensate their time. As Brandon asserted, *"people who participate in [analysis] should be compensated in some kind of way."* Given the metrics we were required to design for in CS 2, and our limited amount of funding, we would not have been able to designate funds for collaborative analysis. Jeremy explained the connection between funding and participating in analysis:

> *I would have more time to be to be [involved in analysis and writing] you know, than I would have liked,but you know this was again, this was not something that was paying the bills, you know what I mean [laughing]. Like the funding that we got for it, I mean, I would say that you know I would, I think we were eating costs on both sides.* Jeremy,

CS 2

6.2 Resisting Domains of Power

The ways in which Dr. Erete, our collaborators, and I designed Case Studies 2 and 3 resisted racial capitalism and the structural and disciplinary domains of power. These studies resulted in stronger community outcomes and collaborator satisfaction. In Case Studies 2 and 3, Dr. Erete was in a more secure position professionally. She resisted pressures to conduct extractive, parachuting research and instead engaged in longer-term collaborations that our community partners initiated. By building off of existing community work, the projects contributed to community-driven efforts to counter structural and disciplinary domains of power that cause social disparities and violence in their communities (e.g., law enforcement, the court system, prisons, inequitable policies [3, 29, 125]).

Neither study was "pure" in terms of whether and how it reproduced systems of power. Rather, each study reveals some of the complexities and compromises involved in trying to do non-extractive community based research. In CS 2, as an act of resistance to the structural domain of power, Dr. Erete and Jeremy arranged for the Street Peace organization (rather than DePaul University) to own the Street Peace application intellectual property (IP). They shifted ownership to Street Peace in an effort to ensure its long-term sustainability independent from academic involvement. Unfortunately, the Street Peace organization reorganized and did not continue to support the SP mobile app. Because Street Peace (i.e., the structural domain of power) owns the IP, we are unable to re-purpose the same application with another organization. This is an example of how, even when we design our work to resist systems of power, the structural domain of power can still create barriers to researchers and collaborators working to build counter-structures [7, 98].

6.2.1 Countering Epistemic Gatekeeping

The structural and disciplinary domains of power created barriers to incorporating collaborators' expertise in the research through funding constraints, university annual review requirements, and

epistemic rules [39, 60, 173]. The structural domain of power dis-incentivized Dr. Erete from incorporating lived expertise into her research by requiring her to shift her focus from community work to publishing in peer-reviewed venues. The knowledge production practices we are required to follow, as enforced through the peer review process, structured our interactions with participants (e.g., through sanctioned data collection methods). Disciplinary norms also impacted how we allocated our time and the degree to which we incorporated their expertise and perspectives into the research.

In CS 2 and 3, we resisted the disciplinary domain of power because we fit our research questions and contributions to our community partners' goals for their existing work, rather than designing a novel project to address our academic research questions [118, 148]. Jeremy, our partner in CS 2, initiated our collaboration because he needed a collaborator to design and implement his concept for the Street Peace mobile app (his *"brain child"*). Similarly, CS 3 grew out of years Natalie's efforts to understand and connect her community's out of school ecosystem. Both projects built off existing community-led projects and therefore were inherently designed to produce community outcomes.

Capitalism, race, and gender intersectionally influence who is able to access the academe, which is the structure that bestows researchers' legitimacy as knowledge producers. Our process of adapting sanctioned analysis methods, identifying community-research questions, and interpreting data collaboratively required considerable financial resources to support graduate students and compensate community members. Furthermore, to produce novel findings suitable for peer-reviewed publications, we ran a parallel process of formulating research questions and findings relevant to conversations in our academic field. Universities and publication venues do not include community involvement or impact in their job performance evaluations or peer-review processes, which makes it harder for early career students and academics to justify spending the financial and time resources on building a collaborative analysis process. The structural and disciplinary domains of power therefore create disincentives for researchers to incorporate lived expertise throughout their research process and produce results that are useful for community partners.

Involving community in data analysis (e.g., CS 3) and writing was a way we resisted racialized hegemonic narratives and disciplinary rules that regulate what forms of expertise are valuable in producing academic knowledge. Traditional analyses methods are time-intensive, require a considerable amount of training to execute, and are designed to produce academic results–making them difficult to integrate into a collaborative process with community members. Requirements for findings to be novel and generalizable also discourage researchers from generating contextually relevant and actionable findings with their collaborators. To overcome these barriers to engaging in a mutually beneficial collaborative analysis processes, we had to adapt our traditional qualitative coding method, teach it to our collaborators, and work with them to identify and answer their own research questions.

As Brandon reflected on the challenges to collaborative analysis, *"you have to spend more time and effort working with community members to interpret results, that includes some form of education because you have to give a mini training to people."* We spent a considerable amount of time making sure the A Team process was clear, efficient, and interesting. We did not want the findings we generated to be solely relevant to academic audiences; we wanted them to answer our partners' questions and to be useful in their work. By collaboratively interpreting the CS 3 data, we engaged in mutual learning where our collaborators taught us about their community, how it functions, and how to develop findings that advanced their goals. In turn, our collaborators learned a new method for synthesizing many different community perspectives.

6.2.2 Benefits of Sharing Epistemic Power

Brandon (CS 3) explained how the act of including community members in analysis signals a shift in epistemic power that positions people outside of academia as agents of knowledge [38, 39].

> *The process allows for you [as a researcher] to acknowledge that [..] the way that people might interpret information could be different than what you might interpret. And the power dynamic being [..] at an academic institution, and you know, professional researchers, I think there can be an underlying assumption that 'we [researchers] know what we're doing,' and it's not that interpretation is untrue, like yes you're a researcher, obviously you should know how to do research. But that doesn't mean*

> *that people who aren't researchers can't help you or that they don't have anything of value to add. [..] I think it's important to involve community members in [analysis], and when you design that from the onset there's a certain kind of humility to the work that you do that I think is absolutely important to [realize] a more thoughtful outcome.* Brandon, CS 3

Recognizing community collaborators' contributions to the development of "knowledge" via co-authorship on academic peer-reviewed publications resists historic exclusionary practices that smother resistant knowledge. We include our project collaborators as co-authors on publications (e.g., [52]) because the work would not have been possible without them. We share the paper drafts with our partners and they verify our findings and suggest edits. Their intellectual contributions are also embedded in the work. Including collaborators as co-authors shares the benefits of publishing. Giada reported that having a publication was helpful to her, because it added to her record as a scholar, which was a significant achievement given her history of recovering from addiction and her involvement in gangs. She was able to include our publication in a project that her university did to celebrate her work.

> *[A professor at my university is] highlighting me, they're doing this whole campaign, and they've got the [QR] bar codes were like students could just [scan with] the phone and go right to my website or go buy [my] book. [..] And they asked me, have you done any type of publications? [So I said] I co-authored, you know, a study with DePaul, so they actually made a bar code to be able to read the publication. Yeah so I was excited.* Giada, CS 2

6.2.3 Points of Epistemic Friction

Points of friction arose when we challenged epistemic gatekeeping through the structural and disciplinary domains of power. For example, we were unable to add our collaborators to co-authors on a publication [70]. The system for being added as a co-author on an ACM publication is rather cumbersome and generates several emails to all authors on a submission. To lessen the burden on our collaborators, we left them off an initial submission to CHI, and tried to add them once the paper was accepted. The CHI paper chairs would not allow us to add our collaborators and we were forced to either pull the paper from publication or not include our collaborators. Due to

professional pressure via the structural and disciplinary domains of power, and with the consent of our collaborators, we went ahead with the publication and credited our co-authors in the body of the paper [70]. We had, however, been able to add them to a prior publication [52].

Interactions with our IRB also produced epistemic friction. Our grants and IRB created limitations on our relationships with participants, such as whether we were allowed to offer food or financial compensation to participate in the studies. These constraints made it difficult to build trust and community with participants. For example, after a research mis-step that inconvenienced one of the street outreach sites, we bought donuts to share with the site and submitted the receipt for reimbursement. This expense got flagged by our university's financial officer because the grant and IRB did not include providing food for participants. To overcome this barrier and still partake in the important tradition of "breaking bread" with a community, I baked pastries for the SOWs instead of buying them (we covered the cost of the donuts and groceries out of pocket).

Another example of the structural domain of power producing epistemic friction occurred during an NSF review for CS 2. The officer suggested that law enforcement be involved in the study and that we use in-situ observations as a research method. This interaction required Dr. Erete to explain how involving the power structure of law enforcement could jeopardize relationships with street outreach workers due to the violent history of policing. Bringing researchers into the field with street outreach workers would endanger students and SOWs because the appearance of a SOW working with non-community researchers could threaten their credibility and trust with residents. This is an example of how applying standard HCI methods in complex power contexts can cause harm. Thankfully Dr. Erete successfully resisted the pressure from the structural domain of power to include law enforcement in the study.

These instances of friction in community-based studies signal that the power structures that govern research were designed to uphold dominant western epistemology. Incorporating lived expertise and resistant knowledge into research requires researchers to be able and willing to challenge structural and disciplinary domains of power.

6.3 Navigating Intersectional Narratives

The *hegemonic domain of power* manifested through the racial, gendered, and capitalist narratives in the studies. Narratives about race, educational class status, and care emerged in interviews and the duo ethnography. Researchers experienced intersectional narratives differently across power contexts, such as in meetings with community members versus funders. Researchers and collaborators' awareness of how cultural narratives might impact their credibility in a given power context enabled them to proactively either counter or leverage the narratives.

6.3.1 Racialized and Gendered Care

The narratives about race and gender that emerged from the interviews centered around care, signaling that the historical role of Black women as care givers who do the work of keeping their communities together was at play in the studies [38]. Gender came up in some cases as entwined with race, such as Jeremy referring to Dr. Erete as a "sister." Tracy alluded to the racialized history of people in her community not being listened to by people in positions of power when she explained that it was important that some members of the research team were Black.

> *Having diverse races represented [by] DePaul both in the conversation and present for meetings I think allows people to have a level of comfort, like I do genuinely want to hear from you. Particularly for parts of our community that historically have not felt heard in any way.* Tracy, CS 1

Tracy's suggestion that participants might have felt more comfortable with Dr. Erete moderating the workshops aligned with Jeremy stating it was important for a Black woman to lead the research team. "*I think, Sheena being a Black sister in a leadership role, who was committed and and cared about what we were doing [..], I think it was a plus, her being a sister,*" Jeremy (CS 2).

Care giving is a form of labor that has been gendered, racialized, and devalued in the United States. Due to racial capitalism, Black women have historically had to act as care givers professionally, in their families, and their communities. Narratives around Black women and care thus position Dr. Erete as a safe and reliable leader and partner in community-based research. However,

her role as a community care giver and care giver for her family at times conflicted. For instance, when trying to schedule a research activity around a required prenatal doctor's appointment, our male collaborator wanted her to prioritize the research activity and reschedule the doctor's appointment. Her pregnancies also impacted the case studies' timelines and community outcomes. The gendered, racial, and capitalist realities of motherhood in the U.S. include insufficient women's healthcare (leading to high maternal mortality rates particularly for Black women) and childcare. Dr. Erete was working to fill her role as a community caregiver and family caregiver while contending with the capitalist pressures involved in going up for tenure, which added considerable pressure for her to publish her research in CS 1. This pressure to publish conflicted with her expected role as a community caregiver because it took time away from doing work that would create a more tangible benefit for the community.

6.3.2 Educational Status

Another cultural, or hegemonic, narrative at play in the collaborations was educational class status and the concept of expertise. Although a person's educational attainment does not determine their economic status, there is a cultural status associated with higher levels of education. Most of our collaborators expected the researchers to have an air of superiority and to not value their input, but they were pleasantly surprised by how the researchers were *"non-judgemental"* (Giada, CS 2) and respected their lived and professional expertise.

> *My own personal fear was like, okay here's some academics that are going to be showing up and like doing their academic stuff. But that never happened, I mean it did, but it never was like 'I'm the academic and I'm telling you what to do, because I know best,' it was more like 'hey, how do we take what the academics do and what happens on the ground and how do we actually pull that together so that we're getting the best of both worlds?* Natalie, CS 3

Based on her experience in other projects, Natalie went on to explain how the intersection between educational class and race can create a dynamic in which non-white, non-academic voices and expertise are subordinated. She attributed the positive interactions with white members of the

research team to Dr. Erete's training and leadership.

> *I have this other project that I'm on that oftentimes the minorities in that work have to say, 'hey, you don't know what you're talking about. Yeah, I ain't a doctor, but you don't know what you're talking about,' you know what I'm saying? That has happened in some other settings, but with Sheena who leads, you know a lot of not-black, you know, students, I don't ever feel like there was ever anything that would have been an issue, so she has done a really good job of working with the team to help them recognize what that needs to look like.* Natalie, CS 3

For Giada, the study shifted her narrative about herself due to her proximity to people in positions of power. As someone who had previously been addicted to opioids and involved in gangs, she saw being included in calls with funders as a major achievement and a marker of where she is in life. She also situates this achievement in the context of her family's immigration story. *"I'm the unlikely suspect of my family [to become] the first college graduate because they were immigrants from Sicily, so they were all poor during the war and you know, never went to school, but they're they're all so smart,"* (Giada, CS 2). However, she explains that her markers of success within capitalism are less important to her than her life experiences, which have given her a deeper perspective on societal harms caused by power structures.

> *I want everyone to know that, no matter how deep in you go [into addiction], there is always hope, there's always hope. And here I am, the example. [..] In these meetings or these conference calls, Sheena would say 'Giada,' I need you to be on this, okay,' you know, as far as to provide the data portion. And I'm not gonna lie to you, I felt really important, like, 'woohoo I made it!' You know, like I'm talking to the [grant] officers [..], and I felt really important. [..] So I have lived experience, and now professional experience, and [..] it's such a great honor to me that I have a bachelor's degree, [but] I actually value my lived experience more than the bachelor degree because I'm able to understand on a higher level than a lot of people [in] mainstream society.* Giada, CS 2

The way our collaborators spoke about being wary of outside researchers (e.g., Natalie made point to say that Dr. Erete was not *"an interloping researcher"*) is indicative of the narratives that have been created about the academe due to its history of exclusionary, extractive, and harmful practices [39, 168]. Our collaborators were confident in their own expertise but did not expect

it to be recognized or valued by an academic researcher. Being aware of narratives surrounding researchers doing community-based work and consciously working against them helped us build trust with our collaborators.

6.3.3 Shifting Power Contexts

Such hegemonic narratives about race and gender functioned differently depending on the context. In Black spaces, narratives about Black women doing care work and Dr. Erete's ability to connect through Black culture (e.g., talking about Black hair styles) were assets in building relationships and trust. However, her position as a professor and her status as an outsider created a distance she had to overcome [87]. Conversely, in white spaces, Dr. Erete's position of power as a professor was an asset, but being a Black woman seemed to make her less credible.

For example, Dr. Erete noticed that Jeremy (a Black man) put an exaggerated emphasis on her educational qualifications when he introduced her to a white male development company they were considering contracting. Even still, the developers did not seem to take her expertise as a computer scientist seriously, because they would direct technical questions to Jeremy (who did not have a technical background), and on multiple occasions they told her that application features were not feasible even after she explained how to build them. Another context when Dr. Erete's race seemed to discredit her was when she and I presented our findings from CS 2 to representatives at the supporting philanthropic organizations (two white women and one Black woman). We noticed that although I was the student, the women kept directing their questions to me instead of to Dr. Erete. These lived experiences with intersectional narratives and our understanding of how cultural narratives can affect our credibility in different contexts helped us to build the relationships our research depended on.

6.3.4 Literacy with Hegemonic Narratives

Multiple collaborators discussed the importance of Dr. Erete's non-Black team members being *"culturally competent"* (Jeremy, Brandon) when working in majority Black spaces.

> *As far as race, you know I think the diversity of Sheena's team is important in working with a predominantly African American Community in Austin. So you know, [having] Sheena and members of her team who were African American was really important. And the cultural competency of the, you know, her team that weren't African American, was really high so didn't didn't have those kinds of barriers, where you know people aren't used to working with people outside of their race.* Brandon, CS 3

Our collaborators attributed what they saw as a level of racial competency to Dr. Erete's team building and training skills.

> *I mean our whole team, obviously, wasn't that, but you know, but with her leadership she attracted people that were like-minded. [..] You know, when you working with the people you know, there are certain like cultural competencies and things you got to be sensitive to.* Jeremy, CS 2

Natalie suggested that Dr. Erete should teach a course for students and faculty on the racial and class (i.e., educational status) dynamics involved conducting collaborative community research in contexts with similar racial and class power dynamics between the researchers and community collaborators.

> *Sheena needs to teach a class to other researchers on how to build a team of students and faculty who do this work. She needs to actually do a class to be like, 'hey y'all smart people, y'all need to learn how to actually work with student[s],' you know, especially when you're doing community work.* Natalie, CS 3

We did not specifically probe collaborators about what they were referring to when they spoke about cultural competencies. I understand them to be alluding to our awareness of how intersectional narratives shape the assumptions people make about one another. For instance, in my efforts to build rapport and trust with community members and collaborators, I took into account my position within power structures of race, gender, and capitalism. I attempted to avoid engaging in harmful behaviors frequently associated with white women working in non-white spaces, such as taking credit for Black women's work; acting as a "white savior"; centering one's emotional responses in interactions; not recognizing Black people as individuals (e.g., confusing one person

for another, making assumptions about someone's personality or life history); or surveilling and evaluating Black people.

Understanding that my collaborators and participants might be wary of me due to the role white women have played within white supremacy and patriarchy (e.g., supporting white men rather than allying with Black women, weaponizing their tears and the police against Black men) shaped how I interacted with them. Though my relational approach was intuitive rather than calculated, in the process of the duo ethnography I recognized that I took greater attention to certain details because of the racial, gendered, and classed context of the studies. For example, I paid closer attention to names and personal tidbits of information; I made sure to credit my collaborators' and participants' contributions; and I strove to find a balance of reciprocating vulnerability (especially in interviews) without centering myself. I also made efforts to "break bread" with street outreach workers (even when our institution presented barriers to doing so), which was an important practice for their community. I think that, even with the unique and violent role white women have historically played, being a woman made it easier to elicit stories due to my socialization to listen well. Street Peace interview participants may have also responded well to me partly due to the gendered care giver role, which can reduce pressure for men to perform masculinity.

Natalie, Jeremy, and Brandon's statements about the research team's social competency suggests that designing the studies to counter racialized narratives about expertise positively impacted our ability to build relationships and trust. Developing this competency involved learning about the historical and racial contexts of the issues we addressed in the studies. We also designed our collaboration practices to resist epistemic gatekeeping by incorporating community expertise (e.g., including them in analysis and writing, making all major decisions collaboratively, co-designing data collection tools). Although to most collaborators race did not play an obvious role in the work, intersectional narratives did shape the research context, goals, and the ways we designed our collaborations.

CHAPTER 7. SATURATED SITES OF POWER AND RESISTANCE

The findings in this chapter respond to RQ2: *How can we structure research to support our community partners' work while resisting dominating and extractive practices in CBPR?* Based on my intersectional analysis of how systems of power and domains of power operated through the three case studies, I identified five *saturated sites of power* ([39, 66]). These are sites where converging systems of power create an acute impact on the research, its outcomes, and collaborators' experiences. The ways these sites are typically designed in CBPR in HCI perpetuate dominating and extractive paradigms. The sites are: the project's inception and outcomes, relationships within the study, opportunities for mutual learning, and the knowledge production process. Our collaborators share ways in which we can restructure these sites so that we counter power-over paradigms through our research.

In this section I share insights from our collaborators about how CBPR should be structured so that it is beneficial and productive for them, rather than extractive. Using the three case studies, I offer examples of how the saturated sites of power can be unintentionally designed to extract time, knowledge, and social capital from community partners and residents with little direct benefit in return. Or, conversely, how they be designed as sites of resistance that build solidarity with community partners and provide a direct, tangible benefit to the community.

7.1 Site of Power: Project Inception

The site of power that seemed to have the biggest impact on our collaborators' experiences was the project's inception. This is the stage where the project is framed, objectives are set, outcomes are determined, and funding is applied for—it sets the foundation for the entire study. As evidenced in Chapter 6, capitalism worked through the structural and disciplinary domains of power at the onset of the studies by incentivizing efficiency and academic outputs. In this section I share our collaborators' perspectives on how the studies began and how the studies related to their prior

work.

7.1.1 Sussing Out Researcher Sincerity

At the onset of the projects, our collaborators had to determine whether they wanted to work with us. In the interviews, they gave us insights into their process for evaluating us. Issues that they considered included assessing our professional backgrounds, our motivations and sincerity, and whether we showed humility and respect when working with them. In the following passage, Ned (CS 1) points out that it was important to him that Danielle (the leader from the civic organization we partnered with) was willing to come to his community, which has a reputation for violence and crime. The fact that narratives about Black criminality did not dissuade her from visiting his community was important to him.

> *I always do a little bit of background on the folks you're about to contact with, and I say okay this looks solid it looks like these look like reputable organizations. And besides in talking with [the civic org leader], she she had a good, solid set of credentials, so you know, I was kind of trusting her judgment, but not totally. And I said okay, you know it looks like, you know you get a feeling when you're working with people, whether or not, first of all, if they're sincere, do they know what they're talking about, and can I trust these people [..]? But no they were very, very, very warm and you know again very engaging and very honest, so you know it's hard to beat that. [..] Once I invited Danielle to lunch, she did not have a car, she got on the bus and came over to I think it was a restaurant in [the neighborhood] [..]. You know, apparently [she] didn't have any hesitancy about coming into, you know, certain neighborhoods, so you know that's another plus in your in your column as far as I'm concerned.* Ned, CS 1

The researcher's history of working in a particular community (e.g., not being *"an interloping researcher that just decided to show up"* Natalie, CS 3) and their willingness to come to the community signaled their commitment to the work. Jeremy said this was a factor in his decision to partner with Dr. Erete.

> *I wanted to make sure it was going to be with a partner who would actually [come to the street outreach sites]. Because this [app] is being used in the field, and so if [the team is] not going to be dedicated and willing to actually, you know, come to ground zero and meet with the people, you know what I mean. Like you got some people do*

> *things differently, I mean you got academics, who work from the academic setting, you know just communicate with others and they may not even come to ground zero—I wasn't interested in that. I wanted somebody that was as enthusiastic about it, as I was, because you know essentially what we're talking about is a tool, you know if it's successful, then it can help people save lives, save more lives. So I was interested in somebody who would actually see that, appreciate that and not take that lightly.* Jeremy, CS 2

The process for community leaders to determine whether to enter into a partnership with outside academics and institutions is laden with intersectional systems of power. As discussed in Chapter 6, our professional credentials (i.e., level of educational, institutions we were educated and employed by, our networks) that our partners considered are tied to our positions within class and institutional structures. Our standpoints increased our credibility, but also indicated that we might be intellectually elitist, out of touch, and indoctrinated by racial and classed cultural narratives such as Black criminality. Our willingness to be on-site signalled that we were not afraid of the community, and by extension, the community members with whom were were going to conduct the research.

After our collaborators' initial process of "sussing out" our intentions, our relationships and trust grew from navigating and resisting structural, disciplinary, and hegemonic domains of power together. We had more opportunities to develop this level of trust with our collaborators in the longer-term studies that grew out of our collaborators' existing work (CS 2 and 3).

7.1.2 Study History and Initiation

The studies' backgrounds and who initiated them determined what kind of research model we used. CS 2 and 3 extended our collaborators' existing work and were grounded in our collaborators' lived and professional expertise. Jeremy (CS 2) and Natalie (CS 3) invited researches into their work to bring in additional funding, labor, and expertise to help them achieve specific goals. CS 1 did not grow out of a history of community work, so our research questions, agendas, and the project's outcomes were not particularly relevant for our community partners.

Tracy's experience in CS 1 is an example of how misalignment between a project's goals and

the collaborator's mission can result in dissatisfaction with the study and its outcomes. Ned seemed somewhat more positive about CS 1, which may have been because his work is related to civic technologies. We also worked more closely with Ned and other community stakeholders to design the second forum than we did with Tracy in designing the first. In contrast to bringing a project *to* a community, Jeremy was actively looking for a researcher to collaborate with on the Street Peace application when a mutual connection introduced him to Dr. Erete. For years prior to CS 3, Natalie had been doing the ground work to understand and connect her community's out of school ecosystem. Natalie described her own research process (though she did not use that term) that she led before academic researchers joined the project:

> *We did a lot of listening, we did a lot of engaging existing networks [..] We really became quite embedded in the day to day operations of what happens in Austin, which is, I think one of the primary reasons that the My Chi My Future work was a nice dovetail because it wasn't like we were trying to start from scratch, because we'd already kind of had some tentacles in a variety of different places and had already convened a variety of different stakeholders. [..] I think Sheena recognized early on, 'oh wait a minute, y'all didn't just start this, this is work that had been building up,' and it was I think perhaps easier do the kind of work that we partnered with Sheena to do because we had already a pretty good created a good foundation.* Natalie, CS 3

The projects' history and who initiated them shaped the projects' framing and outcomes. Tracy stressed that researchers need to connect with community partners *before* framing and funding a project. She explained that being included in the preliminary phase of work gives partners an opportunity to understand if their objectives align, what resources they will need to fully participate, if there are other stakeholders that should be involved, and if a different collaborator would be a better fit for the work:

> *[Interviewer: What advice do you have for future collaborative projects?] Bring us in early. As early as you can. [..] If we're brought in early, I think we have the opportunity to give voice at that point whether or not this particular work would require some compensation for one, we will get a better understanding what how much time we would have to commit. And lastly, are we the best people in our community to do this work with? Or is there someone else that should maybe lead this, even though you have a relationship with us. Maybe we can refer this other nonprofit stakeholder might*

> *be actually be the better partner. [..] As DePaul goes into the communities to learn more things ask more questions find out more and more stuff, identifying the kinds of folks that understand who that community is, who their stakeholders are, how the community ebbs and flows, what's its priorities, what's its challenges, is very important for you to create authentic representation and to really hear from that community as a whole.* Tracy, CS 1

In summary, the ways the case studies began had a considerable impact on how power was structured in the work. CS 1 was a more traditional short-term, unfunded, parachuting study, whereas CS 2 and 3 were longer-term, funded, and community-initiated studies. Developing the projects together and building off of existing community work embedded our collaborators' goals in the research and thus led to more impactful outcomes.

7.2 Site of Power: Tangible Outcomes

Capitalist and disciplinary pressures on researchers to conduct short-term research, as well as the availability and flexibility of funding, constrain the potential outcomes from a study. The outcomes from each study had a large impact on our collaborators' satisfaction with the work.

7.2.1 Timeline and Funding

Ned and Tracy showed appreciation for the report that we created for CS 1, but seemed disappointed with the lack of concrete outcomes for their communities. When we asked Ned what his advice for future work would be, he commented on the need for a funding. *"Something that we've run into with other projects, [..] is funding. You have these wonderful ideas, but they need to be funded and where is that funding coming from?"* He also explained the commitment required to produce a tangible outcome for the community. *"You can't just quit when the going gets tough because it's gonna be a long haul, so if you're not in it for the long haul don't get in."* Tracy explained that the outcomes and goals for CS 1 did not align with her own objectives, saying she had a hard time dedicating the time because *"it's not actually a primary strategic goal for us."*

Interestingly, the main outcome from this work was a micro-grant program that the city designed and funded to support community-led technology initiatives on the south and west sides of

Chicago. The program integrated support into the proposal writing process so that organizations with fewer resources or grant experience could equitably participate and execute their proposals. In addition to funds, members of the advisory board donated expertise and other resources; Dr. Erete provided University space to host a program run by one of the awardees. Although the micro-grants did relate to issues residents raised in the forums, it was not developed in collaboration with any community stakeholders involved in the forums. Whether due to their lack of involvement, who received the grants, poor communication on our part, or some combination of these things, neither Tracy nor Ned recalled the grant program. Both connected the lack of funding for the project with a rather underwhelming project outcome: a report, flyers, and a presentation (which we delivered two years after the forums took place).

7.2.2 Opportunities for Aligned Outcomes

In contrast, CS 2 and 3 produced community-defined outcomes. Jeremy conceived of and co-designed the SP application, which produced a tangible outcome for him and the street outreach workers who used it. The limitation to this study was that the SP organization did not continue to support the app, which greatly disappointed Giada and the outreach workers who were enthusiastic about it.

> *I mean there's no better tool than to give somebody in real time. You know, an app that that can help them save a life, right? I mean we're talking about mothers crying over a casket, so if you've got a technology that can help prevent that, it's a game changer. [..] I was sad when it ended [..], I kind of went through a mourning, or something you know, because I'm like, 'Wait where's the app? It's not on my phone anymore' [..] but I think it went well and I think everybody was pleased with the outcome.* Giada, CS 2

Similarly, CS 3 was a long-term initiative that Natalie created, and the research produced tangible outcomes that moved her work forward. We gathered, analyzed, and synthesized data and created data visualizations; designed structures and processes for managing large-scale collective action; and developed a proposal for the City. Brandon was satisfied that the initiative structures we helped establish were continuing without our support.

> *At this current stage, maybe, maybe they could be of support, but it's it's full steam ahead. It's kind of like they they did their part, and [..] it could be possible that they'd be in the way at this point.* Brandon, CS 3

Jeremy saw benefit in combining research with community work because the researchers provide an outside perspective and a systematic approach while the community partners provide their expertise and leadership gained from lived experiences. Integrating each side's expertise, resources, and interests into the collaboration leads to mutually beneficial outcomes.

> *I think both you know my leadership and gut intuition on the app was spot on, mostly, but the process that [the research team] went about it added more value to it. You know what I mean, it validated some things, but it also added some, so I think that's a testament to Sheena and her team and how they work in the scientific process. [..] It's the partnership between those two elements that really makes something spectacular and useful.* Jeremy, CS 2

Natalie (CS 3) had a similar perspective and referred to the academic-community partnership as *"The best of both worlds"* to bring about systemic change. She was concerned, however, that the initiative could lose its direction without our involvement to integrate divergent community perspectives into a longer term, cohesive vision (e.g., through the workflows, workshop templates, organizational structures, data collection practices, data analysis and synthesis we implemented). When asked if she thought that the project could continue without our team's involvement, she responded:

> *Ooh, ooh [pause]. Yes, but. It can eventually move forward without DePaul's involvement. However, I think that reasons why previous hubs haven't been able to be sustained is because the deep work that DePaul brings to this (the research, the documentation, the White Paper), all of that doesn't happen. Because when you're on the ground, you're just trying to get the work done, right? And so you're reactionary and just doing the work. For real, sustained change to happen in communities, that means infrastructure, that means systemic. You know, how do you change community dynamics systemically? Those types of things need a partner like a DePaul that can bring the academic research, the perspective, like it can help people think through that and provide that resource of thought leadership and 'let's pace it, and let's let's not be reactionary, let's plan accordingly.' It may take longer, but it means that the likelihood of it actually making sense is probably much more. [Without this perspective] people*

> *start not showing up, because you're just sort of reacting to things. But if you want sustained structures that a 'my chi my future' is trying to bring, or a hub is trying to bring, [based on my years of experience] I recognize the power and the value of having a partner like DePaul.* Natalie, CS 3

Case Studies 2 and 3 show the potential for research that is integrated into existing community initiatives to produce aligned outcomes and make a positive community impact. However, as evidenced by the Street Peace application being discontinued, and the sustainability questions Natalie raised about My Chi My Future, even community-initiated studies that are designed to produce tangible outcomes can fail to fully deliver. It is therefore important to design collaboration structures and research methods to protect and foster relationships (e.g., within the community and between researchers and the community), as they may last long after the research has ended.

7.3 Site of Power: Relationships

Relationships are a saturated site of power situated in the interpersonal domain of power. Our collaborators spent a considerable amount of time, labor, and social capital building and maintaining relationships. Our collaborators shared this relational role in the studies; it is labor that is not often recognized in collaborative research. Brokering relationships between researchers, funders, and community members required our collaborators to work across intersectional systems of power and navigate cultural narratives that impact trust.

Our community partners depend on their relationships with community members and funders to do their work. For instance, Jeremy drew on his relationships with different foundations to fund the Street Peace project, so it was crucial that we maintained those relationships after he left the Street Peace organization. Much of the grant reporting depended on Giada and Dr. Erete, as Jeremy (CS 2) said *"with the funders that [..] I brought to the table, they [Giada and the researchers] kept the relationships going there and gave them what they needed."* It is therefore critical to understand how the outcomes from a CBPR engagement impact community partners' relationships.

7.3.1 Risk of Harm to Relationships

Across the case studies we see examples of collaborator relationships being harmed, formed, and strengthened through the research. Many of the relationships that collaborators brokered were between people occupying different positions of power, which required our collaborators to be sensitive to hegemonic narratives. Bringing a team of researchers (few of whom are Black) into a majority Black, economically oppressed community requires collaborators to negotiate relationships between the researchers and community members. The history of research injustice in Black communities, combined with the racial and class disparities between the researchers and community members, puts pressure on the collaborators to manage the relationships.

In CS 2, even though Dr. Erete is Black, which signaled that she could identify on a certain level with the community of street outreach workers, she still had greater power within capitalism and the structural domain of power (being affiliated with a university). Her race did not automatically provide her with "insider" status [87]. To overcome these differences in power, Jeremy leveraged his credibility (which he earned through his tenure at the organization as a SOW and administrator) to open the door for Dr. Erete to build relationships and trust with SOWs. Jeremy considered Dr. Erete's race to be an asset in his job of brokering her "admittance" into the community:

> *To be honest, you know, I think Sheena being, Sheena being, you know, being Black too, I think that that helped. You know what I mean, some strong woman Black leadership. I think it helped just for her being a face of it, and then me bringing her and her partners to the table, into the trenches with us, I think it helped.* Jeremy, CS 2

The brokering process is an investment of time, labor, and social capital (which Tracy, CS 1, described as *"relationship currency"*) on the part of the community collaborator. Tracy explained her decision to partner with us and Danielle's organization, even though the project was not aligned with her priorities, in relational and transactional terms:

> *We know we have the relationships that you all need in order to do this thing, and you're asking if you can borrow those relationships in order to get to this information. And I see how it might in the future, this information* ***might*** *produce a win in some tangible way for my community, so I make it available.* Tracy, CS 1

These are the relationships that Tracy and her organization depend upon to do their work. She explained the work she had to do to get people to participate in the forum she hosted and what she risked by drawing on her social capital in that way:

> *The thing that I think is valuable and we consider currency for our organization are the relationships that we have within this community. And so we pulled on that a lot, because this is a new fancy thing for the community, it's not something that happens every day right, and so we had to go spend the time make some calls, you know cajole. In some cases 'hey dudes, please just come check it out, do it.' If I remember, there was a couple [discussions] that were were spirited which is great, we want that we want that. But as a community stakeholder I'm here after everyone else is done, after DePaul leaves, we're still here and so as things get spirited you know, for a long-time stakeholder you're always wondering, 'is this going to cause a long term negative relationship? Is this going to even lead to a rift in any way?' none of that happened, thank God, but it's always something that you know, we risk right. So this is the currency we risk losing.* Tracy, CS 1

Tracy went on to explain how the research context in particular exposes her relationships to potential harm, requiring extra labor to protect them. Here statements allude to histories of research injustice:

> *When I bring the relationships to a new kind of venue, experience, interaction with a new set of people who are prodding them, and the purpose of bringing them is to be prodded of in some way, I make ourselves vulnerable. I make those relationships that we have grown with these people vulnerable for potential demise. So that didn't happen thankfully. But I was worried about whether or not that would happen, and so part of my what I took on as my role was keeping an eye on how that was going. So that if I needed to put out fires afterwards I could call up said person and say 'hey, is everything okay?,' you know, 'how are you feeling?' You know that kind of stuff, and try to figure out how to make amends, if at all.* Tracy

If the work does not produce a tangible outcome (i.e., beyond a report or paper) that the community and research participants value, research can actually "cost" community organizations *"relationship currency"* with community members, which Tracy explained is crucial to her organization's ability to do its work.

> *It's my understanding that the sessions rolled out, the information was gathered, and that's what it was was, like we're trying to get the information so that we could make*

> *a report that has some recommendations on what might happen next. And that was it so, and this is what, from my perspective, bringing in my relationships is, I think it's really hard for a lay person, you know your average citizen to understand why that in and of itself is important. As an educator as a researcher that's amazing like that's a great goal, but I think as a resident you're like 'so what who cares,' right? Because they want to see a tangible outcome. They really want to see what does that mean, why does it matter, how does it change my life, and I'm not sure we're at that point yet. So that's the part that's challenging for us and and would be if we were to do something like this again and I need to try to connect with those exact same people again, it would be challenging for me to invite them again.* Tracy, CS 1

We learn from Tracy that when a study conducted in a racialized community fails to produce a tangible outcome, it can harm the community partner's relationships with residents. She explained that inviting people who participated in the tech forum to future research engagements would be difficult because our study did not produce an outcome they valued:

> *They're going to want to know, 'Why should I come back again? What did you do with it the first time? All you did was create a report.' You know, don't misunderstand, I'm not trying to say there's no value there, I understand how valuable those are, but I think they don't the average person and community does not.* Tracy, CS 1

Ned (CS 1) was also concerned about the vulnerability of his relationships with community members in the tech forum he hosted, saying he was *"watching for storms brewing"* during the workshop. Although Tracy and Ned were relieved that no blatantly harmful interactions occurred during the workshops, they were disappointed by the project's outcomes, and for Tracy, how the study might might have harmed her relationships with community members.

7.3.2 Relationships as Positive Outcome

Case studies 2 and 3 had much different relational outcomes than CS 1. Brandon was pleased with the relationships in the community that developed over the course of the MCMF (CS 3) initiative:

> *The biggest thing is that it was a good process. And a lot of the work that we did is still ongoing, that the community owns it now. There was just a meeting last last week, and they were, like, 100 people on the call and all of these kinds of [OST and service] providers. Some of the relationships that were built and put together as a part of this*

> *[initiative] is still ongoing, and that's the kind of outcome I like to see. And not that it was the intention, maybe it was, [but] he momentum didn't stop just because of who was involved.* Brandon, CS 3

For Giada (CS 2), fostering relationships between the research team and street outreach workers (SOWs) was a positive outcome. She brought us to Street Peace sites and helped us forge our connections with SOWs. After her first introductions she described us as *"making bffs [best friends forever], fast friends, real easy [with the SOWs] [..], that's kind of the end result that you would want on my end, to empower somebody to be able to have that relationship."*

Most of our collaborators cited the relationships we built with each other, which developed through navigating and resisting domains of power together, as a positive outcome. Given the longer and deeper engagements, we have had more continued contact with our collaborators in CS 1 and 2, though Ned (CS 1) said *"I cannot laude enough the wonderful relationships that I've had with [the research team]."* Several of our collaborators expressed a desire to work together in the future (e.g., *"I would definitely pull them back in again in a heartbeat,"* Jeremy, CS 2) and even remain friends (e.g., Natalie: *"I can't imagine my life without Sheena,"*, and Giada: *"I'm going to be lifelong friends with Jessa and Sheena,"*). By demonstrating our commitment to our partners and their community through acts of resistance (e.g., against epistemic gate keeping and our efforts to leverage our resources for the community's benefit), we were able to build trust with our community partners. As Brandon stated, *"I would say the biggest thing is trust, in that they trusted me and I trusted them, as researchers, that they were genuinely interested in supporting an initiative for community members."* As part of the process of building relationships, and as a result of having relationships, opportunities for mutual learning in collaborative research is a site of power that can be harnessed to resist extractive paradigms embedded in research.

7.4 Site of Power: Mutual Learning

Working closely with our partners through the research and design process created transparency and opportunities for mutual learning that challenged epistemic gatekeeping. Academics learning

from community experts, and community experts learning from academics challenges the disciplinary and hegemonic domains of power. We shared knowledge and skills with each other, and through this exchange our collaborators gained insight into the research process that built their trust in our methods.

7.4.1 Exchanging Expertise

Researchers shared skills that are typically only accessible through "gated" institutions such as universities or businesses. In turn, researchers were learning skills and knowledge that are not recognized or legitimized by these institutions. For instance, Giada and Jeremy (CS 2) taught us about street outreach practices, the life experiences many street outreach workers share, and how to build rapport with the community. Natalie (CS 3) shared her wealth of knowledge and facilitation skills from listening and leading community initiatives for decades (which was a mutual exchange, as she said *"I was really grateful that Sheena did take an active role in helping facilitate conversations so that we could understand what the model is,"*). Jeremy and Natalie taught Dr. Erete about how to navigate the underground world of money in philanthropy. Brandon (CS 3) took us on tours of his community to give us a situated, somatic understanding of the neighborhoods and how the built environment impacted lived experiences relevant to the MCMF initiative and research. He described why it is important for researchers to learn about communities they work with from community members' perspectives:

> *One of the things that's really hard to see when you're trying to understand the community is you look at a map, maybe have conversations with people, but like there are certain dynamics that you have to experience within a community. And me, having grown up there, like there were just certain things that you wouldn't notice that have a big impact. So one of the things about this community, in particular, is that there's a freight rail line that runs kind of in the dead center of the community [..]. And it's hard to see the impact of that [on a map]. So as we were riding around looking at things, and you know I'm just kind of explaining this phenomenon, they notice that in the interviews with other people that they are kind of talking about that. Like, 'oh yeah, this is something [..] that we wouldn't have seen had we not one taken a drive or two, had a conversation with someone who who grew up here, kind of felt these impacts.* Brandon, CS 3

Giada (CS 2) also imparted crucial technical knowledge about how to operate her organization's database as well as historic, administrative, and political information about her organization that helped us navigate it. Through our partnership she also developed skills and experience with designing and integrating a novel technology that she was able to apply in other contexts. She explained how the SP app design and integration extended technology skills she was already developing and were instrumental in her career development:

> *When Sheena offered this, asked if I would want to collaborate her and Jessa, you know this was another opportunity for me to be exposed to experts [..] And then I felt like I was able to share a little bit from me, for them to learn as far as bringing them to the communities, you know, so I think it was like a really good partnership, I really do. [..] I learned a lot, let me tell you, believe me. And when when I had to take this technology class at [my university], I felt like real empowered, like 'Okay I got this, like hey, I developed an app you know, I was on a team that developed an app.' [..] When I first got out of prison I didn't even know how to turn a computer on [..] I want to be the best that I can be, and I believe that my experience with this app and with DePaul University has greatly enhanced me being the best I can be and putting me on a path to want to learn even more.* Giada

7.4.2 Building Trust in Research

By integrating mutual learning and close collaboration into our research process, we also created opportunities for them to understand our methods and the value research can provide. For instance, when Jeremy saw how our findings validated and expanded his initial concept for the SP app, it strengthened his trust in us and the research process.

> *I don't think there was ever a situation where they didn't take [my input] into account, but they still went through the process to make sure it it really made sense for the people on the ground, so I mean that just made me respect you know their process that much more.* Jeremy, CS 2

Working closely throughout the research allowed Jeremy to see how systematic our methods were, which was important when the results suggested making a change to his original concept for the application. We had a similar experience while conducting the A Team work (CS 3), in which we gave a presentation to the team about how we prepare data for analysis (e.g., transcribing

everything participants have written) and the inductive coding method we use to analyze it. One of the members of the team expressed being touched that we took such care with community members' contributions, which built her trust in the research.

In Cases 2 and 3, which our partners initiated to achieve specific goals, there were more opportunities for mutual learning that resisted epistemic gatekeeping and strengthened our trust with one another. In CS 3, we extended the mutual learning process through analysis, which was not something we had been able to accomplish in prior work.

7.5 Site of Power: Knowledge Production Process

The analysis and writing phase of research is a saturated site of power, because academic methods, epistemologies, and governing structures (e.g., peer-review, professional reviews) are rooted in racial capitalism [39, 67, 168, 195]. Traditional analysis processes and their outputs typically do not benefit on-the-ground community work. This misalignment creates a challenge for preventing epistemic burden [148] in CBPR because the community perspective on data is critical to developing holistic and contextual results. However, there are opportunities to adapt our analysis techniques to address community-identified research questions and generate results that are beneficial to the community.

7.5.1 The Co-Analysis Conundrum

In "pure" CBPR studies, community members should be involved in analysis and writing, which we only partly accomplished in CS 2 and 3. This limitation was in part due to our priorities, timelines, and funding. It is also important to recognize that producing academic publications often does not align with community partners' top priorities, and therefore is difficult for them to allot time to it (e.g., *"I don't think I had bandwidth to do that,"* Tracy, CS 1). Jeremy (CS 2) saw the value in participating in analysis but could not afford the time:

> *I think my role was was mainly the initial vision, attracting some funders, getting the willpower [in my organization], and making sure it made sense with with our on-the-*

ground strategies. But yeah, I mean writing, analysis, that was their team. [..] I would have liked more time to be [involved], but this was not something that was paying the bills, you know what I mean [laughing]. Jeremy, CS 2

The time-intensive nature of academic analyses methods and their irrelevance to most community-based work creates a conflict in CBPR, because it is essential to include community perspective when interpreting people's stories and insights (i.e., qualitative data) or even quantitative data. Brandon's community tours were instrumental in helping us understand how the physical and social spaces in the community impacted the work we were doing. Natalie (CS 3) explained that community members can provide context to patterns in data that researchers might not understand, and identify questions that researchers might not know to ask:

I think the pros [to community analysis] are that you need eyes that are doing work locally, micro, right? You need to be in the mix of it to look at it and to be able to contextualize, because there are nuances to communities that data will not show. There's a 'why' something doesn't happen here [e.g., on a certain city block]. [..] It may have to do with the fact that, well, there's a prostitution ring that works out of that corner. So it's an unknown data point because who's going to be asking, 'hey, is there a prostitution ring over here?' [..] So it's those unknown data points that help contextualize the data that is collected, and so that is important and valuable. So I think that it's necessary, we have to involve community, because again community development [..] has to happen within. Natalie, CS 3

Natalie addressed the question of whether researchers should be requesting community members' time, labor, and knowledge for collaborative analysis. In a project that is defined *by* the community, where its primary aim is to support the community to meet its own goals, she sees collaborative analysis as an opportunity to bring in expertise and resources that might be underdeveloped in the community.

I think it's important to recognize that community doesn't always have expertise, and so it is necessary to have the 'Sheenas' of the world, with her team to come in and do some of these things, because, you know, who has who has the resources? Who has the expertise that someone like a 'Sheena' and her team can bring to a community? If you have it, fantastic, then why aren't you doing it? Natalie, CS 3

Natalie and Brandon (CS 3) argue that involving a community perspective in analyzing CBPR studies is crucial, but as we hear from Jeremy (CS 2) and Tracy (CS 1), community partners often do not have the time or funding to participate.

7.5.2 Finding a Balanced Co-Analysis Approach

In CS 3, we found opportunities to collaboratively conduct analyses that provided useful results and saved our partners time. For Natalie, partnering with researchers who could analyze raw data for her was a major benefit. We analyzed the data with her guidance regarding what questions to address and we produced visualizations that she was able to interpret and apply in her work.

> *I'm gonna be honest, the fact that I didn't have to do any tallying or figuring out how to use data systems to create reports, I was like 'thank you Jesus.' [..] Their involvement was actually good because it wasn't frustrating [..], looking at data can be frustrating if you're not here to it to do it, but it was engaging and it was easy to interact with it.*
> Natalie, CS 3

Therefore, using a method that enables community data interpretation without requiring partners to participate in a lengthy process (e.g., inductive coding) that benefits the academic partners more than themselves is a viable alternative. I designed the A Team co-analysis method to position our collaborators as guides in the process, while we researchers did the time and labor-intensive coding. Our collaborators identified research questions, helped us develop a codebook, and provided feedback on our code applications. The A Team contributed five hours of their time, which resulted in a proposal for the City of Chicago to fund their concept for a community hub (we also provided them with $300 gift cards). Brandon thought the A Team contributed important context to the analysis. He was glad to see community members partaking in the interpretation phase, which he said they are usually excluded from:

> *We were able to interpret the information and clarify certain ways that people talked about it. [..] This happened several times, where people would phrase things in a certain way, or use certain terms that, as community members, had we not been involved in the the coding and conversation, then certain points would have gotten missed. [..] I wish I had more time to really engage even more in that in that process, but I'll say*

> *that I believe that the process that they laid out for coding the information was very accessible, in that, you know, many of the people who were part of the A Team are not professional researchers (I'm not a professional researcher). And you know, designing a process that would include us in the research was very good. So I feel like our level of involvement was deep enough that I that I appreciated it, and I feel like sometimes when research is done in communities, that's the part that people get left out of. In that, you know, we listened to everybody, we collected all of this information, and then we go to our spaces and the researchers do their thing—they interpret the information and come up with conclusions and then present that back. But this was an opportunity to be included in that process of interpreting the information, and I feel like the level of interpretation we were invited into was really good, perfect.* Brandon, CS 3

By identifying the saturated sites of power within community-based collaborative research, researchers can intentionally design their studies to avoid perpetuating extractive paradigms and leverage opportunities to collaboratively resist dominating power structures while furthering the impact of their partners' work.

CHAPTER 8. DISCUSSION

This dissertation addresses the following research questions:

1. How do dominant power structures, narratives, and epistemologies manifest in HCI research and praxis?

2. How can we structure research to support our community partners' work while resisting dominating and extractive practices in academic research?

Answering RQ1, the findings from my intersectional analysis [66] suggest that power structures, hegemonic narratives, and western epistemology operated through domains of power [38] to incentivize extractive practices and dis-incentivize incorporating lived expertise in the three case studies. Capitalism created pressure for researchers to prioritize using their labor to produce academic outcomes, which held little value for our community partners and may have jeopardized their relationships with people in their community. Capitalism worked through the structural domain of power and created pressure on researchers and community collaborators to produce certain outputs that were not always aligned.Researchers experienced pressure from their university to publish quickly and gain tenure; collaborators experienced pressure from funders and community members to produce measurable impacts.

The structural and disciplinary domains of power also enforced epistemic quieting by creating barriers to incorporating resistant knowledge and lived expertise into the research [38, 39, 60]. Hegemonic narratives about race, gender, and class (economic and educational) played out in collaborators' predictions about the researchers' commitment, sincerity, and ability to connect with community members and gain their trust. Therefore, it was important that the researchers were sensitive to how cultural narratives might affect the process of building relationships with community collaborators and community members. This intersectional analysis reveals how systems of power reverberated through each domain of power, organizing our labor and what we produced. The

findings for RQ1 make three contributions to the HCI literature on collaborative community-based research:

1. Community partners' perspectives on design-based research collaborations in communities with histories of research injustice

2. An analysis of how systems of power shape researcher and community partners' collaboration experiences; collaboration and knowledge production practices; and how benefit is distributed between researchers and community partners.

3. Examples of researchers' acts of resistance against structural and disciplinary domains of power.

To answer RQ2, I identified five *saturated sites of power* [39, 154] that can be designed to resist harmful extractive research practices and contribute to our collaborators' work to build counter-structures [7, 98]. Saturated sites of power are places within the research process where intersecting systems of power converge to uphold existing hierarchies (e.g., white supremacy, cis hetero patriarchy, western epistemic dominance) unless intentionally structured to resist power-over paradigms [39]. These sites are: 1) the project's inception; 2) its tangible outcomes (or lack thereof); 3) relationships within the study; 4) opportunities for mutual learning; and 5) the knowledge production process.

The ways in which we structured the saturated sites of power across the three case studies varied. Through the sites of power we can understand where the studies fell along a spectrum of research models that ranged from parachuting research (i.e., Case 1, the Tech Forums study) to what I describe as a *ground-up CBPR model* (i.e., Cases 2 and 3, the Street Peace study and My Chi. My Future initiative). As Harrington et al. state, "equity in participatory design dismantles the hierarchies that exist between researcher and participant, shifting power to coming from the bottom up instead of from the top down" [87, p.21]. In the ground-up CBPR studies, our community partners initiated the studies as a way to strengthen and extend work they had been leading for years. The ground-up CBPR studies were characterized by more balanced power dynamics across the

saturated sites of power than in the parachuting study. The shift in how we structured the saturated sites of power resulted in more equitable outcomes (i.e., collaborators and researchers benefitted) and less potential for harm to our collaborators' community relationships. In the ground-up CBPR studies, Dr. Erete was in a stronger professional position (i.e., she had obtained tenure) to resist the capitalistic pressures that incentivized the more extractive and dominating practices in Case 1 (the Tech Forums study). This shift in how we organized power within the collaborations from the parachuting study to the ground-up CBPR study resulted in stronger relationships with our partners and more relevant outcomes for our community partners. The findings for RQ2 make the following contributions to HCI:

1. An intersectional analysis of the saturated sites of power in community-based research in HCI.

2. Examples of *ground-up* community collaborative research that produces community-defined contributions and by default integrates community assets.

3. A set of prompts informed by community partners to guide researchers in building a collaborative research practice that resists extractive paradigms and redistributes power to community partners.

Next, I share recommendations based on our partners' reflections for how to build a non-extractive collaborative research practice in contexts where there are acute power imbalances and histories of research injustice [62, 87, 104, 118, 148, 168]. The following recommendations are detailed in the next three sections: 1) before entering into a CBPR engagement, researchers need to reflect on their own capacity to fully commit to the work and how power structures might impact their ability to fulfill the community outcomes; 2) if they are confident in their ability to engage in non-extractive CBPR that does not risk harm to their collaborators, researchers can use the guiding principle of redistributing resources to make decisions about how they structure the studies and the types of projects they engage in; and 3) researchers can use narratives as a tool to reflect on what power configurations are being reproduced or countered by their collaborations so that they can

have more agency in structuring their work and the saturated sites of power to resist harmful power paradigms.

In the tradition of offering questions to guide HCI researchers' reflexive practices [7, 61], each recommendation includes a set of prompts to support researchers in the complicated, challenging, and messy process of creating new research practices that resist the structures that perpetuate extractive research models. My hope is that our partners' insights push forward the paradigm shift in collaborative HCI that scholars such as [7, 41, 46, 62, 87, 148] have instigated, while foregrounding the principles of Black feminist thought that underpin this shift. In the words of Patricia Hill Collins, "a paradigm shift is a change not just in ideas, but also in how a field of study reorganizes its practices to facilitate its problem-solving objectives" [39, p.42]. The implications from this work may reach beyond the bounds of individual researchers' practices; they could be considered by funding bodies seeking to support ethical and productive collaborative projects, university leaders interested in advancing justice-oriented research, or community organizations evaluating prospective partnerships with other institutions.

8.1 Researcher Capacity

Engaging in non-extractive collaborative research is a resource-intensive endeavor that requires funding, staff, and time, but also personal resources such as care (a form of emotional labor [87, 124]) and energy. Given that a researcher's long-term dedication to the work and realizing its outcomes (or not) impacts community collaborators' relationships with community members, it is crucial for a researcher to reflect on whether they have the capacity to engage in CBPR. A researcher's capacity will be affected by the structural and disciplinary domains of power as well as the interpersonal domain in their personal life.

8.1.1 Recognizing Structural Realities

The case studies exhibited how the structural and disciplinary domains of power can affect researchers' motivation to engage in a CBPR study and the outcomes they prioritize (e.g., published

papers or tangible community outcomes), which can negatively impact collaborators and their relationships within their communities (as Tracy described from Case 1). My intersectional analysis as well as bringing in perspectives from collaborators deepens the discussions in HCI about structural forces encouraging short-term and extractive research [61, 67, 87, 118]. The more pressure a researcher is under from these domains of power (e.g., before tenure when there is a requirement to publish and obtain grant funding, as Dr. Erete was in Case 1), the more likely they are to impact the researcher's bandwidth and approach to a collaboration. The following prompts serve as a guide for a research's reflection on the structural factors that may impact their capacity to fully commit to a CBPR engagement:

1. What power structures is your work constrained by and motivated by?
2. What are your obligations to these power structures and how will they impact your capacity to meet your community partners' expectations?
3. What systems of power will you need to resist through the work?
4. What will resisting systems of power require from you in terms of your time and emotional labor?
5. Are there ways in which your institution could increase your capacity to engage with your partnering community?

8.1.2 Reflecting on Personal Resources

As part of a practice to counter dehumanizing language and methods in research, researchers engaging in CBPR can "humanize" themselves by acknowledging the personal resources CBPR requires [73, 87]. As we learn from Duarte et al., there is a "need to measure researcher and community capacity for care relative to the ambitiousness of the project outcomes" [62, p.28]. Community-based research requires a level of personal investment, care, and commitment (particularly for minoritized researchers [87]) that can be untenable depending on what the researcher is

dealing with in their personal life. Dr. Erete's care giving responsibilities for her children, and mine for my ailing mother, strained our ability to fully be present for our community partners and residents. Before engaging in CBPR, the following prompts can help a researcher evaluate whether they have the personal resources necessary to fully commit to a CBPR engagement:

6. What level of emotional resources will be required for the research (e.g., is it a triggering or upsetting topic for you, what level of pressure will you feel for the work to succeed)?

7. Considering what you have going on in your personal life, will you be able to be physically, emotionally, and mentally present for your community partners?

8. Do you have a supportive personal network and flexibility to be present for off-hours calls and meetings?

9. Are you and your collaborators aligned in your values regarding boundaries and priorities between work and personal life?

8.2 Finding Opportunities for Resource Distribution and Opening the Gates

A collaborative research practice that follows transformative justice principles [16, 150, 174] should support the counter structures [7] that subjugated communities are building in resistance to dominating systems of power. We did not design Case 1 to support existing community efforts, and the project made little to no impact according to Ned and Tracy. Cases 2 and 3 were initiated by our partners to extend work they were already doing to counter power structures driving inequities in the city—the outcomes of these case studies were much stronger according to our partners. A transformative justice approach requires the researcher to find opportunities to leverage their position within power structures and distribute resources to their community partners. Resources might be funding, materials, space, skills, knowledge, time, clout with people in power, or even research assistant positions (as was the case in the MCMF study where our collaborator enrolled in a master's program at DePaul). Distributing resources in this way involves understanding how

the structural and disciplinary domains of power function in order to find ways to use them for the community's benefit (e.g., how Jeremy and Natalie taught Dr. Erete about the philanthropy world). This act of resistance re-purposes the existing systems to support communities in their efforts to build counter-structures [7, 68]. My recommendations for building such a collaborative research practice include taking an assets-based approach [54, 97, 115, 186, 191], prioritizing tangible community outcomes, and designing collaboration practices that involve mutual learning and resist epistemic quieting [38, 39, 60, 154].

8.2.1 Prioritizing Community Impact through a Ground-Up CBPR Approach

I describe a ground-up CBPR approach as one that extends existing community-led work (as in Cases 2 and 3). This approach is consistent with Pierre et al.'s recommendations: "Avoiding epistemic burden necessitates reforming the researcher role as one of support for existing community efforts, rather than the driver of new work that requires significant knowledge extraction without core lasting benefit. De-centering also involves intentional redistribution of material gains and recognition" [148, p.9]. Taking an assets-based approach [54, 115, 186, 191] by integrating research into existing community-led work, which is grounded in lived expertise (e.g., Jeremy and Giada's experience with gangs and violence) and grass-roots research (e.g., Natalie's process to understand her community's STEM ecosystem), means that community priorities and outcomes will drive the collaboration. A common practice in CBPR is to approach a community with a study that is already framed, looking for "needs" or "problems" to address through design (as was the case in CS1) [41, 61, 118, 148]. Our collaborators advocate for researchers to instead frame the research *with* their community partners and to integrate the research into community-led work. When the intention for the collaboration is to produce a lasting technology, policy, or other type of system, integrating research into existing community work that has a solid foundation can improve the chances of the outcomes' sustainability if (or when) the researchers leave. This approach creates an opportunity for researchers to work with their collaborators to design the study to bring additional resources into the community [62, 148], which creates a less extractive and more balanced

power dynamic from the project's onset.

If the community partner has already defined their goals and created structures to implement them, there can be a clear delineation in roles between researcher and collaborator that leverage both parties' expertise. For instance, in the tech forums, especially in Tracy's case, we initiated the project independently and did not incorporate Tracy or Nathan's expertise into defining and executing the project. Whereas in Street Peace and MCMF, we each had an aspect of the work that we were leading and we would defer to each other in their own areas of expertise (i.e., community-related or research). Incorporating research into existing community work also increases the chances that any structures or tools that are created and integrated throughout the work will be more sustainable and generate a greater impact (e.g., the Street Peace app might be re-purposed in the future for another violence prevention organization, and the MCMF initiative is still ongoing without academic support). The following questions are designed to encourage researchers to think creatively about ways to build off of and contribute to existing assets and strengths within a community:

10. Is the research building off and contributing to your community partner(s)' existing work?
11. What resources do you have access to that you could distribute to your community partner?
12. How might academic outputs (e.g., published papers) benefit community collaborators (e.g., building a publication record for applying to grants)?

8.2.2 Epistemic Resistance and Mutual Learning

Integrating research into community work in a ground-up CBPR process entails a flexible and creative approach to developing a research agenda and questions. Throughout the collaboration, the researcher finds opportunities to gather information and develop findings that will be relevant to an academic audience, instead of organizing the work around pre-defined research questions and anticipated academic contributions. "Retrofitting" research in service of community goals leverages the flexibility of the HCD process while resisting the extractive paradigm of academically-driven

community based research and epistemic gatekeeping [38, 39]. This approach extends existing collaborative recommendations for research outcomes to be crafted to align with the community partner's goals rather than determining the agenda (e.g., [62, 87, 104, 118, 148] by intentionally integrating assets-based design [56, 81, 191] and emphasizing role of the community partner in initiating the research (as in Cases 2 and 3). The ground-up approach to CBPR also creates opportunities for mutual learning and sharing resources because of the alignment between the community work and research. As Natalie and Jeremy reflected, combining research with community-led initiatives can "be the best of both worlds" when academics and community collaborators have shared goals and relevant skills and knowledge to exchange. For Natalie, partnering with academics who could collect, analyze, and visualize data for her increased her own capacity for her work. Sharing research methods and systems with community collaborators, adapting them based on collaborators' recommendations, and making them accessible to non-academics (e.g., through the A-Team co-analysis process) challenges disciplinary norms around who can create knowledge and how. These prompts may aid a researcher in integrating acts of epistemic resistance and mutual learning through their research:

13. Are there opportunities for researchers to gather and analyze data with the community partners that they could use in their work?

14. What kinds of skills and knowledge might people on the research team learn from the community partners?

15. Is the community partner interested in being involved in analysis, and if so what resources would be required to support their participation?

16. How might analysis methods need to be adapted to support the integration of lived expertise and resistant knowledge and produce relevant findings for the community?

8.3 Using Narratives as a Tool for a Reflexive Praxis

Reflecting on what narratives a research study creates, supports, or counters is a way to get perspective on the embedded power dynamics in the research. This device functions in two ways: 1) by identifying what narratives are implied through the study, and 2) examining how cultural narratives operate in the study (i.e., the hegemonic domain of power's role [38]). Embracing narratives in research is consistent with Black feminist thought, with its focus on dialectical exchange, and builds on growing work in HCI using narrative methods [66, 67, 140] or supporting community-defined narratives through design [97, 118]. I provide examples for how reflecting on narratives can expose the ways in which the study may unintentionally reproduce dominating power structures, or how it resists them, through the ways a study is structured, the team building process, and in data collection.

8.3.1 Structuring Collaborations

The way a collaboration is structured affect how the domains of power operate through the study. Where the collaboration physically takes place, how community expertise is incorporated throughout the work, and ways in which progress is documented and communicated shape the narratives implied through the study. For instance, only holding meetings at the researcher's office might imply their time is more important than the community collaborators', or that the communities where the collaborators are based are too dangerous (i.e., supporting the narrative of Black criminality [2, 52]). Both Ned and Jeremy cited the our willingness to come to "ground zero" (in Jeremy's words) as an important factor in their decision of whether to partner with us, while Brandon offered to bring us on tours of his community. Academic settings can also be perceived as hostile to people traditionally excluded from them and who may have had negative experiences with academia or research [148, 153, 154, 178]. However, never inviting a collaborator to the researcher's university can also uphold narratives about who is welcome in the academe and what forms of knowledge and expertise are appropriate or relevant to academic spaces.

Regularly working together at the community site created more opportunities to incorporate community perspectives and supported the narrative that community members' knowledge and experience is equally important and valid as the researchers'. Brandon explained how epistemic acts of resistance that put lived expertise on the same level as academic indicates a researcher's humility, a quality valued by our partners and supported by previous work [76]. Researchers can also reinforce this narrative by collaboratively developing methods to incorporate community perspectives beyond the research and community PIs (e.g., by broadening the team, creating a "sounding board" or steering committee, conducting co-analysis, each of which we did in Case 3). In terms of communication practices, resisting the trope of the researcher who parachutes into a community, collects data, and disappears behind the walls of the academe to analyze and publish their findings [99] involves building systems to document and share information about the work with the community as it progresses. In Cases 1 and 2, we returned to the participating communities and presented our findings, while in Case 3 (MCMF), we wrote one-to-two page briefs and circulated them publicly after each workshop and including a segment at the beginning of each workshop to recap initiative activities, findings, and outcomes.

Lastly, it is important to understand the relational work the community partner has to do for the study. The "bridge work," or relationship brokering, that collaborators often do in CBPR (e.g., [118]) is a recognized role in assets-based community development [115] but is not typically acknowledged in research or corporate settings. Tracy shared how this form of labor consumes time and energy and can be stressful, because it requires the community partner to draw on their "relationship currency" while not being sure if the residents will have positive experiences in the research itself or if the research will produce a tangible benefit for them. If it does not, it could harm the community leader's relationships with residents and make it difficult to recruit for future initiatives. Thus, it is necessary to talk with the collaborator about what resources might support them in fostering relationships between researchers and the community as well as within the community, especially since a community partner may not feel comfortable advocating for financial compensation for this type of work due to narratives about community service (as Tracy

described). Discussing potential harm to relationships and how to prevent that harm is also crucial. The following questions explore how the structure of a collaboration might invoke or counter cultural narratives and the hegemonic domain of power:

17. What cultural narratives are invoked by the study's context and the people involved?
18. How does the study counter and/or leverage the cultural narratives it invokes?
19. Does everyone involved have a role in which they can apply their expertise and make a valued contribution?
20. If the community partner is responsible for brokering relationships, how is their work being recognized, supported, and compensated?
21. What kinds of systems might you need to create to facilitate sharing power in decision making?

8.3.2 Team Building and Training

Understanding cultural narratives was crucial for the research team to navigate systems of power in the research without causing racialized harm and to build trust across differences in power. Humility, sincerity, care, and "cultural competency" were themes that arose in the interviews as important traits our collaborators looked for in research partners. This finding echos the lesson from Johnson et al. that community residents interpreted researchers who acknowledged social constraints, limits to their understanding of issues, and modest potential for impact as acts of care [76]. Our partners credited Dr. Erete's team building and training techniques for her team's skills at working in community settings. Valuing people over research and community impact over publications were key in moving toward a non-extractive CBPR practice and developing a team that could effectively and safely work with community partners. Dr. Erete also incorporated conversations and learning about the community's history into students' training due to her understanding of how important it is to situate design work in historical context [62, 87, 148]. Brandon took

us on local tours, which helped us contextualize our approach to the work, which is important for preventing epistemic harm [148]. We had direct conversations with research assistants about the history of research in Black communities, how that might affect participants' impressions of us, and how to adjust our research methods in response to that history (e.g., conducting conversational interviews). Building a team around values and narratives that center community members' knowledge and experiences protects the relationships that community collaborators depend upon to do their work. The following prompts can be used as guides for contextual inquiry among the research team:

22. What is the historical context of the community and the project's focus?
23. What is the background to the project, who has been involved, and what has already been done?
24. What do community members and collaborators value about their community?
25. How might academics be received in the space and what histories might their presence trigger?
26. How might the races, ethnicities, genders, religions, disabilities, etc. of the research team impact the process of building trust with community members and collaborators?

8.3.3 Vulnerability in Research

Vulnerability is also a useful heuristic for identifying power imbalances in collaborative community-based research. Traditional research methods create an interpersonal power dynamic where the researcher is expected to be a blank slate and share nothing of themselves to mitigate bias, whereas the participant is asked to share their thoughts, experiences, or personal stories. This creates an imbalance in vulnerability, where participants' knowledge is only legitimate when processed by a researcher into "data" [39, 148, 168]. This process reflects the history of white western researchers dehumanizing and other-ing racialized people through their research methods and pursuit of "objective" truth [137, 195]. Academic writing is also traditionally written in the third person to

portray research as detached from the person producing it, as if produced from a neutral "view from nowhere" [85].

Several of our community colleagues commented on us not fitting their expectations for researchers to be detached and to de-value community members' contributions to the research; this shows why it is important for the researcher to be aware of dehumanizing narratives embedded in our methods and the harmful impact that witholding one's self (i.e., not being vulnerable) in research interactions can have. For instance, using the term "data collection" with a collaborator, rigidly adhering to an interview protocol, or not showing reactions to an interlocutor's responses can exasperate existing distrust towards researchers (see [87] for similar critiques of PD methods). Not building rapport or trust (which requires offering something of one's self) with people participating in a study will still affect the "data" because it exacerbates the imbalance in power. By following lessons on Black feminist interviewing, such as bearing witness in interviews [108], and developing a relationship with "participants," a researcher is more likely to get a richer understanding of whatever question they are exploring.

Prioritizing the research participants' experience also means choosing methods based on stage of the researcher's relationship with community members and whether community members have existing relationships. When a researcher is first introduced to a community by a community collaborator (acting as a "bridge"), using carefully-designed group methods [87] first can give community members an opportunity to "suss out" the researchers in the safety of a group. In a group setting the researcher can also learn about the community through conversations that emerge between participants, which balances the researcher/participant power dynamic because community members can steer the conversation. Group methods can also be designed to create engaging experiences that support community members' connections with one another, providing some kind of immediate value to the people involved through the research itself [118]. As Brandon commented, one of the lasting outcomes from the MCMF initiative (Case 3) were the relationships within the community that it helped build. Once a researcher has developed rapport with community members in a group context, they can carry that through to one-on-one interviews, removing some of

the formality and "test" dynamic that can be present in interviews (or another option is for community members to conduct the interviews themselves [99]). Questions to consider when designing methods to counter harmful epistemic narratives include:

27. In a given research interaction, is the researcher reciprocating what they are asking the collaborator or participant to give of themselves?

28. What might each party get out of the interaction?

29. What is the historical and power context for the interaction?

30. How might the historical power context affect the participant's sense of vulnerability in the interaction?

CHAPTER 9. LIMITATIONS AND FUTURE WORK

Recent work in critical HCI has shown that it is important to generate modest findings and to acknowledge the limitations of the researcher's recommendations to prevent epistemic burden [76, 120, 148]. This work has several limitations. First, I drew my recommendations from a particular social, institutional, and historic context. My findings and recommendations therefore are not generalizable; instead they may serve as a starting point to understand how structural, political, and historical factors impact the way that power is negotiated and allocated in collaborative research. I conducted this work from the standpoint of a private university that does not have a strong emphasis on research. However, there are structures within DePaul University that support justice-oriented community work (e.g., the Steans Center, Egan Office, and the ABCD Institute). These offices are independent from the colleges that comprise the university, and therefore do not have power in hiring choices, tenure committees, or annual reviews. Nor does DePaul have any formal community accountability structures. Other universities will have unique historical relationships with local communities and may have other types of structures for conducting community research. Therefore, the power and political dynamics for professors at other types of universities may be different than what Dr. Erete contended with in our case studies.

Second, it is impossible to prevent social desirability bias in member checking studies, particularly when the researcher has an ongoing relationship with the interlocutor and when the data will be identifiable. Given the differences between the studies and our relationships with each partner, it would not have been possible for the external evaluator to remove all identifying information from the interviews. Furthermore, although I hired a Black external evaluator in part to create a safe space for the Black interlocutors to discuss racialized experiences, she did not have a prior relationship with them and therefore did not have any trust or rapport to draw from. By using an external evaluator, I was shielded from vulnerability while asking my partners to share stories and insights that may have felt somewhat uncomfortable. We were not trying to "isolate the variable"

of race by hiring a same-race evaluator, but instead wanted to provide our partners with some space to offer critiques on our work together, even though they knew Dr. Erete and I would listen to the interviews. Given that my relationship is different with each person, the role of the evaluator impacted their interviews differently. In the interviews our evaluator conducted with with the collaborators I have a closer relationship with, if I had been the moderator I may have been able to dig deeper into their responses about systems of power in the research. In each interview, I also would have been able to ask more specific probes because of my knowledge about the studies.

Lastly, I was the only person conducting the intersectional analysis. Although Dr. Erete read my findings and we synthesized them through our duo ethnography, she did not see the full transcripts. My situated perspective as a white woman therefore likely impacted how I understood the steps of intersectional analysis and applied it to our interviews.

9.1 Future Work

In future work, I plan to explore how to have these reflexive conversations with community partners as our relationships develop. While being mindful of our collaborators' time and labor, creating different avenues for member checking (e.g., through a third party like an evaluator, scheduled team check-ins, sharing the prompts from this work) might help to prevent epistemic burden [148].

At a structural level, I want to explore issues of time in CBPR studies. How do academic cycles (e.g., school year, tenure review, annual review, grant cycles, publication deadlines) and organizational cycles (e.g., strategic plans, grants, annual reviews) impact collaborations? Institutional and organizational priorities may shift over time; focus on hiring Black faculty doing justice work may go in and out of vogue; funding incentives or restrictions via state or federal laws may instigate shifts; and organizations may change course (as was the case with Street Peace). Are there practices or structures we can establish within our institutions to mitigate the impacts of such shifts on longer-term community collaborations? Furthermore, I am interested in working with professors at other universities to understand how institutional hierarchies and structures affecting community based work may differ. I would like to delve deeper into these structural questions with different

types of CBOs who engage in cross-institutional collaborations.

Lastly, I want to explore accountability structures for doing community based work. What examples of power-sharing structures (e.g., community-based steering committees and advisory boards) exist within universities or other institutions? What are community members' perspectives on creating such structures, and how can they be designed to serve the goals of the community and bring resources to the community? What mechanisms are needed to address community complaints and balance power between community groups and universities? This line of inquiry will help ensure that community members have a say in how research is conducted and that their interests inform the direction of research.

CHAPTER 10. CONCLUSION

Any CBPR or PAR study is impacted by systems of power and the uneven social landscape they produce, the topography of which researchers can unintentionally reproduce through extractive research practices that levy an epistemic burden on their collaborators [148]. Given that systems of power are embedded in our mental paradigms of the world, its people, and what constitutes knowledge [38, 39], it is necessary for researchers to interrogate the ways in which these systems shape the way they approach their work.

One way in which dominating power structures (e.g., white supremacy, cishetero patriarchy, capitalism, nation) are perpetuated is through deficit narratives that focus on outcomes of oppression (e.g., poverty, violence) without interrogating the oppressive systems themselves, or through narratives that frame knowledge practices that deviate from Eurocentric epistemologies as invalid. Such narratives can be traced to the inception of the social sciences [17, 168, 195]. Design justice and assets-based design push for a departure from conducting "damage-centered research" [182, p.409] in racialized communities—instead working with communities to leverage their strengths while resisting the oppressive systems that create inequity [46, 54, 56, 67, 87].

Furthering assets-based collaborative research approaches that counter white supremacy and its patterns of domination is a central aim of my dissertation work. I draw from the principles of Black feminist thought [38] and transformative justice [16, 98, 111, 147] to consider how we can evolve CBPR practices in HCI to explicitly support anti-oppressive structures by identifying saturated sites of power in CBPR. I share recommendations from the community perspective about how to design mutually beneficial collaborations.

I intend for my findings, recommendations, and prompts to be useful to academics and community groups. The findings that are not specific to CBPR, such as those relating to the ways in which systems of power impact community relationships, may also be applicable in other imbalanced collaboration contexts (e.g., a small local organization working with a well funded national

nonprofit, a city-affiliated organization working with a neighborhood association, a powerful tech company working with a community group). In addition to contributing to critical HCI literature [7, 61, 62, 87, 118, 148], I hope to contribute to the social science and activist literature by offering ways to enact principles from Black feminist thought, intersectionality, and transformative justice in CBPR engagements beyond HCI. Analyzing intersectional structures and collective experiences (rather than individuals) is important to "inform group-based or collective social action" (p.158) [39]. By making the sites of resistance and saturated sites of power in collaborative research more visible, I join in the work of applying theory to praxis with the aim of dismantling dominating power paradigms in research and in our relations with one another.

Appendices

APPENDIX A. COLLABORATOR INTERVIEW PROTOCOL

Warm Up: Project Conception

1. To start us off, could you please briefly explain the work you've done with Sheena and Jessa? I read about the work but would like to hear about it from your point of view.
    - What were your goals for the work?
    - What did you think you were going to do or contribute to the project?
    - What were you hoping the outcomes or impact of the project would be?
2. Could you please briefly describe your role throughout the project and the work you've done with Jessa and Sheena?
3. Have you collaborated with other academics on projects? (If yes..)
    - Could you please briefly explain what those projects were and who you worked with?
    - Were those collaborations before or after your work with Sheena and Jessa?
4. How did your collaboration with Sheena, Jessa, and the DePaul team first start? What were your motivations for collaborating with them?
    - Who invited or encouraged you to collaborate?
    - What were some of your considerations in deciding whether you wanted to partner with the DePaul team?
    - Looking back on your early interactions with the team, did race affect your first impression of the team? How so?
    - Did you have any concerns or reservations about entering into the collaboration?
5. What was the process of learning to work together like?

- In terms of race or racial dynamics, what did you consider as you were building a relationship with the team?
- What other power dynamics played a role during this relationship-building phase of the project? (e.g., gender, class, etc.)
- Were there any "norms" or "unwritten rules" you felt you had to adjust to? (E.g., communication style, mode—phone, meetings, email)
- Do you think the DePaul team made any adjustments on their end?

6. Can you tell me about your communication with the DePaul team throughout the project?
    - (If not answered) How did you feel about the style or mode of communication?
    - Were there specific times when it was too much or too little?

Involvement Throughout Project Phases

6. Are there any specific stories you can remember that describe how your expertise (both lived and professional) played an important role in deciding the direction of the project (e.g., the project's focus and goals, who was involved)?
    - What supported this?
    - Were there any times you felt your expertise wasn't sufficiently taken into account? Why?
    - Were there there any specific interactions in deciding the direction of the work in which race played a role?
    - What other power dynamics played a role in the collaboration during this first phase of the project? (e.g., gender, class, etc.)
    - How would you have liked the interactions or your level of input during this phase of the project to have gone differently?

7. Are there any specific stories you can remember that describe how your expertise (both lived and professional) played an important role in executing the project (e.g., how you went about achieving the goals, the methods you used)?

    - What supported this?
    - Were there any times you felt your expertise wasn't sufficiently taken into account? Why?
    - Were there there any specific interactions you can remember in which race played a role between you and the researchers? How about between the researchers and community members?
    - What other power dynamics played a role in the collaboration during the execution of the project? (e.g., gender, class, etc.)
    - How would you have liked the interactions or your level of input during this phase of the project to have gone differently?

8. In terms of the research-side of things, how much input did you have in the analysis and writing processes?

    - How did you feel about that level of involvement?
    - Were there any barriers to participating in the analysis process?
    - What do you think the pros and cons are to involving community partners in the analysis of these kinds of projects?

9. *If involved in analysis:* Are there any specific stories you can remember that describe how your expertise (both lived and professional) played an important role in the analysis and writing?

    - What supported this?
    - Were there any times you felt your expertise wasn't sufficiently taken into account?

- Were there there any specific interactions you can remember in which race played a role in the analysis?
- What other power dynamics played a role in the collaboration during the analysis and writing? (e.g., gender, class, etc.)
- How would you have liked the interactions during this phase of the project to have gone differently?

10. Were there any aspects of your collaboration, project, or research that you would have liked to have more input in?

Structural Reflections and Critiques

11. What kinds of resources did you bring to the collaboration? (e.g., your time, staff's time, relationships, expertise, materials, funding)

12. At any point did you feel burdened or harmed by the project? (e.g., it required too much from you or your team for what you were getting out of it)

    - Can you please tell me about that?
    - What could have made that better?
    - How did/do you feel about the amount of time it took? Was it what you expected?

13. Were there any instances when you felt racially harmed or offended by someone on the research team? If so, are you comfortable telling me about it?

14. Were there other power dynamics that caused harm or offended you? If so, are you comfortable telling me about it?

15. Over the course of the project, were there any times when your goals and the research goals conflicted?

    - How did you navigate these situations?

- Did you feel comfortable raising these issues with the DePaul team?
- Were you satisfied with the result or would you have liked something different?

16. Did you encounter any organizational or institutional barriers throughout your collaboration? (e.g., within your own organization, challenges that came from the University's rules or schedule, with funding agencies)
    - How did they impact you?
    - How did you overcome them?
17. Did funding or grant requirements play a role in shaping the project? (e.g., project motivations, limitations)
18. Did funding or grant requirements play a role within the collaboration?
19. How did you feel about how the project ended/is wrapping up?
    - Are there ways it could have been designed to be more sustainable?
    - What do you think the outcomes of the work were?
    - Would you have liked to see any other impacts or outcomes from the work?
    - Do you feel your goals were met for the project?

Closing

19. If you were to engage in another collaboration like this, what are the two biggest things you would want your collaborators to know or do?
20. Do you have any other thoughts you would like to share?

APPENDIX B. REFLEXIVE PROMPTS

B.1 Researcher Capacity

B.1.1 Structural Realities

1. What power structures is your work constrained by and motivated by?
2. What are your obligations to these power structures and how will they impact your capacity to meet your community partners' expectations?
3. What systems of power will you need to resist through the work?
4. What will resisting systems of power require from you in terms of your time and emotional labor?
5. Are there ways in which your institution could increase your capacity to engage with your partnering community?

B.1.2 Personal Resources

6. What level of emotional resources will be required for the research (e.g., is it a triggering or upsetting topic for you, what level of pressure will you feel for the work to succeed)?
7. Considering what you have going on in your personal life, will you be able to be physically, emotionally, and mentally present for your community partners?
8. Do you have a supportive personal network and flexibility to be present for off-hours calls and meetings?
9. Are you and your collaborators aligned in your values regarding boundaries and priorities between work and personal life?

B.2 Resource Distribution

B.2.1 Impact through Ground-Up CBPR

10. Is the research building off and contributing to your community partner(s)' existing work?

11. What resources do you have access to that you could distribute to your community partner?

12. How might academic outputs (e.g., published papers) benefit community collaborators (e.g., building a publication record for applying to grants)?

B.2.2 Epistemic Resistance and Mutual Learning

13. Are there opportunities for researchers to gather and analyze data with the community partners that they could use in their work?

14. What kinds of skills and knowledge might people on the research team learn from the community partners?

15. Is the community partner interested in being involved in analysis, and if so what resources would be required to support their participation?

16. How might analysis methods need to be adapted to support the integration of lived expertise and resistant knowledge and produce relevant findings for the community?

B.3 Narratives as a Tool for Reflexive Praxis

B.3.1 Structuring Collaborations

17. What cultural narratives are invoked by the study's context and the people involved?

18. How does the study counter and/or leverage the cultural narratives it invokes?

19. Does everyone involved have a role in which they can apply their expertise and make a valued contribution?

20. If the community partner is responsible for brokering relationships, how is their work being recognized, supported, and compensated?

21. What kinds of systems might you need to create to facilitate sharing power in decision making?

B.3.2 Team Building and Training

22. What is the historical context of the community and the project's focus?

23. What is the background to the project, who has been involved, and what has already been done?

24. What do community members and collaborators value about their community?

25. How might academics be received in the space and what histories might their presence trigger?

26. How might the races, ethnicities, genders, religions, disabilities, etc. of the research team impact the process of building trust with community members and collaborators?

B.3.3 Vulnerability in Research

27. In a given research interaction, is the researcher reciprocating what they are asking the collaborator or participant to give of themselves?

28. What might each party get out of the interaction?

29. What is the historical and power context for the interaction?

30. How might the historical power context affect the participant's sense of vulnerability in the interaction?

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