



The CODE[^]SHIFT model: a data justice framework for collective impact and social transformation

Srividya Ramasubramanian^{1,*}, Mohan J. Dutta²

¹Newhouse Professor & Endowed Chair, S.I. Newhouse School of Public Communications, Syracuse, NY 13210, USA

²Dean's Chair in Communication, School of Communication, Journalism, and Marketing, Massey University, New Zealand

*Corresponding author: Srividya Ramasubramanian. Email: srramasu@syr.edu

Abstract

In this article, we present an alternative framework that resists hegemonic social sciences within data-driven communication theorizing through a culture-centered approach (CCA). Building on the CCA in co-creating voice infrastructures at the margins, we argue that data justice requires transforming interpretive data framings, disrupting the hegemonic registers of knowledge production constituted around data, and working with/through data to challenge the structures of capitalism and colonialism that circulate the practices of exploitation and extraction. We build upon community-engaged projects emergent from the CCA in/with/from the Global South to propose the CODE[^]SHIFT Model, grounded in principles of equity-mindedness, collective impact, purposiveness, and systemic change. It highlights what data justice looks like in various stages of community-led transformation: identifying pressing social problems; bridging cross-sector coalitions and partnerships; organizing for collective impact activities; and sustaining capacity building. We reframe data as pluriversal, embodied, sacred, sovereign, disruptive, solidarity, and impossibility.

Keywords: social justice, data justice, decolonizing, quantitative criticalism, communication theory.

Constituted historically within the colonial project, data have often been used as an oppressive tool, serving hegemonic capitalist agendas to map and surveil communities, dispossess communities, steal land, enslave peoples, and organize large-scale theft of Indigenous and local knowledge (Dutta et al., 2021; Smith, 2021). Redlining Black Americans, misuse of Havasupai DNA data, theft of Global South agrarian knowledge and healing traditions, biopiracy, mobilizing big data to disenfranchise Indigenous and Black communities, organizing data to disseminate hate, and digital surveillance of hyper-precarious migrant workers are some examples of the ongoing neocolonial uses of data to serve the agendas of global racial capitalism. Within Communication, white Eurocentric cis-normative patriarchal norms draw on the language of rationality and objectivity as dominant ways of theorizing to further neoliberal and neocolonial logics of data extraction while simultaneously erasing the knowledge held at the global margins (Chakravarty et al., 2018; Couldry & Mejias, 2019; D'Ignazio & Klein, 2020; Dutta, 2004; Dutta & Pal, 2020; Dutta et al., 2021; Gajjala, 2004; Milan & Treré, 2019; Ramasubramanian & Banjo, 2020; Scharrer & Ramasubramanian, 2021; Tacheva & Ramasubramanian, in press; Thatcher et al., 2016). Studying the various ways othered communities have subverted this history of data weaponization offers avenues to theorize data more broadly as resistance, meaning-making, healing, organizing, collective action, and mobilizing for structural transformation (Dutta, 2004; Dutta & Pal, 2020; Dutta et al., 2021; Gajjala, 2004; Ramasubramanian & Sousa, 2021; Ramasubramanian et al., 2020).

In this article, we define data justice as organizing to resist the power and control that shapes the operationalization, gathering, uses, and architectures of data (Dencik et al., 2019; Tacheva & Ramasubramanian, in press). We argue

that data justice seeks to fundamentally transform the interpretive frames of data, disrupting the hegemonic registers of data knowledge production and working with/through data to challenge the structures of capitalism and colonialism that circulate the practices of exploitation. Data justice is not only about numbers, but it is also about stories seeking to transform the constitutive political and economic systems that shape the conceptualization and uses of data. It is about working *with* data for social and material transformation grounded in the lived experiences of marginalized groups and driven by marginalized communities.

We build upon community-led, community-owned projects in/with/from the Global South to propose the CODE[^]SHIFT Model. By taking a culture-centered approach (CCA) to data justice (Dutta, 2018; Dutta et al., 2019) grounded in empiricism and decolonizing praxis, this model emerges from our grassroots organizing of community-led communication projects and academic-activist collaborations for over two decades at Center for CCA to Research and Evaluation (CARE) led by Mohan Dutta and at the projects led by Srivi Ramasubramanian (Media Rise, The Difficult Dialogues Project, and the CODE[^]SHIFT lab). We bring together theoretical registers emergent through conversations amidst local and Indigenous struggles in the Global South (and the South in the Global North) to theorize about data for collective impact and systemic actionable change (Dutta, 2004, 2018, 2019; Dutta et al., 2019a, 2019b, 2021; Dutta & Pal, 2020; Salter & Dutta, 2023; Ramasubramanian et al., 2017; Ramasubramanian & Banjo, 2020; Ramasubramanian & Wolfe, 2020, 2023; Ramasubramanian et al., 2020; Ramasubramanian & Sousa, 2021; Scharrer & Ramasubramanian, 2021; Tacheva & Ramasubramanian, in press).

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Contributions to theoretical innovation

In this article, we draw upon the key tenets of the CCA to propose principles and practices of the CODE[^]SHIFT model. This model elaborates on the role of data justice within communication research for advocacy, mobilizing for social transformation, and co-creating activist interventions by partnering with communities and activists (Dutta et al., 2019; Salter & Dutta, 2023). Toward this end, we consider the conceptual definition, role, and practical uses of data in the co-creation of voice infrastructures for community organizing, and generated through these voice infrastructures (Dutta, 2018). This article makes several significant contributions to theoretical innovation. First, it contributes to data-driven theorizing by taking a social justice-oriented and community-led approach from a grassroots indigenous anti-colonial organizing perspective, turning to hitherto erased communities as owners of knowledge and data (Salter & Dutta, 2023). In doing so, it challenges the normative assumptions of hegemonic post-positivist social scientific approaches that are often privileged within human communication research. Second, it extends the scope of CCA beyond public health, Indigenous rights, and environmental communication contexts by turning to questions of data justice, quantitative criticalism, and participatory data practices, specifically exploring openings for building just data infrastructures in digital contexts. Third, it offers the CODE[^]SHIFT Model with principles and practices to elaborate how community-owned data can serve as key pivots in bringing about long-term structural transformation in communication infrastructures. Finally, this article contributes to theoretical innovation by bridging traditionally siloed knowledge within Communication across theory/practice, qualitative/quantitative methods, social scientific/humanistic approaches, and postpositivist/critical paradigms, noting that such siloing is embedded in the whiteness of the colonial project. Extant scholarship on the CCA systematically documents that decentering data lie at the heart of challenging everyday experiential oppressions (Dutta et al., 2019). Culture-centered interventions carried out in solidarity with hyper-precarious migrant workers, for instance, re-imagine concepts of data incorporated into smart cities and urban planning, foregrounding migrant worker voices as the infrastructures for social justice-oriented data (Dutta, 2017a, 2017b, 2019b, 2021). *Beyond theory development, the CODE[^]SHIFT model has practical implications for scholars, policymakers, and activists.*

Conceptualizing data justice from a decolonial communication perspective

Dominant ways of knowledge production and sharing within Communication infrequently consider social justice and equity. Hegemonic social sciences, including dominant frameworks of communication scholarship, typically conceptualize data merely as “numbers” to be analyzed by academic experts, removed from communities. Moreover, dominant data-oriented social scientific research within Communication does not typically focus on critical approaches to theorizing. When community-based research has relied on data, it has often been through the logic of intervention science, which uses the community as a place for experimenting *on* community members rather than co-creating knowledge *with* them (Dutta & Basnyat, 2008). Existing macro-level change theories such as the Stanford Collective Impact Model emerge from top-down approaches that do not consider equity and social justice (LeChasseur,

2016; Wolff, 2016). Quantitative criticalism is a fairly new approach within Communication that argues for more critical and inclusive approaches to quantitative research (Scharrer & Ramasubramanian, 2021). Recent theories such as the Critical Media Effects framework (Ramasubramanian & Banjo, 2020; Riles et al., 2022) center concepts such as power, intersectionality, context, and agency within more traditional social scientific areas of Communication such as media effects. The current essay further builds on these critical approaches to data within Communication in the context of community-engaged communication scholarship.

Within computer science and data science, conceptualizations of data justice are rather limited, with a narrow focus on questions of “fairness” and “social good” in automated systems and algorithmic decision-making (Jagadish et al., 2023; Noble, 2018; Tacheva & Ramasubramanian, *in press*). The emphasis is on creating technological solutions such as open-source coding and pre-registration of scientific studies. The organizing framework of digital platforms is built on racist extractive processes of colonization and capitalist profiteering, with algorithms designed to further disenfranchise marginalized communities (Benjamin, 2019; Dutta et al., 2021; Tacheva & Ramasubramanian, *in press*). In contrast, we highlight the need to examine data justice within larger frameworks that oppose data colonialism and the AI Empire where biometric surveillance, extractivist data practices, technological apartheid, and data-driven discrimination have been normalized (Benjamin, 2019; Couldry & Mejia, 2019; Noble, 2018; Milan & Treré, 2019; Tacheva & Ramasubramanian, *in press*; Thatcher et al., 2016).

We critique these technologically deterministic perspectives on data justice from a humanistic, feminist, anti-colonial, Indigenous, and grassroots organizing perspective (Dutta et al., 2021; D’Ignazio & Klein, 2020; Gajjala, 2004; Ramasubramanian & Banjo, 2020; Scharrer & Ramasubramanian, 2021; Tacheva & Ramasubramanian, *in press*). We interrogate data justice from a decolonizing register that addresses the historic and social structures of power inequities within which data-driven theorizing and practice take place. Against this historical context of data colonialism and resource extraction, we see data justice as organizing to build various forms of data resistance such as data collectives, shared data governance practices, data sovereignty, data cooperatives, and counter-mapping strategies that challenge subjugation and control (Dencik et al., 2019; Dutta et al., 2021; Tacheva & Ramasubramanian, 2023). We frame data justice as structural, reliant on community participation and development, and with aims of restorative justice (Heeks & Renken, 2018; Christine & Thiyane, 2021).

Data justice for us is both a goal and a tool for bringing about social transformation. In line with Amartya Sen’s (2009) grassroots approach to social justice, we take a community-led perspective to data justice that focuses on the lived experiences and material realities of those at the margins of intersectional oppression by listening to the specific circumstances, contexts, and histories within which social injustices and systemic inequalities occur. In other words, we start by identifying the particular conditions of actual injustices within the living conditions of marginalized communities through participatory data practices such as active listening and community ownership of the research design, data, and sense-making process (Scharrer & Ramasubramanian, 2021). The goal is to build alternative bottom-up data

infrastructures to empower marginalized groups by creating conditions that allow for reimagining what data justice looks like.

Role of data justice in community-led interventions: a culture-centered approach

Within hegemonic frameworks of Communication, theories such as diffusion of innovations that have drawn upon data to focus on societal change have often reproduced racist colonial logics (Dutta, 2005). For instance, Dutta (2007) observes that early diffusion of innovations studies on the promotion of population control directed at nation-states in the Global South reproduced racist eugenics, largely targeting India's oppressed caste communities. When communities have been engaged in these dominant frameworks, their voices have largely been missing in the definition of problems, the identification and uses of theoretical frameworks, and the solutions that have been imposed on them (Dutta, 2017a, 2017b; Ramasubramanian & Banjo, 2020; Tufte, 2017). While such communication interventions that emerge from top-down models do engage with data, they are not social justice oriented and often reproduce the colonial-capitalist framework in promoting individualized market-driven solutions (Dutta, 2007; Ramasubramanian & Banjo, 2020). They rarely center the voice, agency, or culture of those at the margins of the communities where such interventions are conducted (Ramasubramanian & Sousa, 2021). We argue for a culture-centered and data justice-oriented approach to community-engaged communication scholarship to bring about long-term social transformation such as policy change and building capacity for community-led structural transformation by co-creating communicative infrastructures in partnership with communities at the global margins (Dempsey, 2009; Dutta, 2004; Ramasubramanian & Sousa, 2021).

Emerging from community-led Indigenous and local struggles for justice rooted in the Global South, the Culture-Centered Approach (CCA) situates communicative inequalities in relationship with structural inequalities through the interplays of culture, structure, and agency (Dutta, 2004, 2008). The CCA makes a distinction between community-based research which uses the community as a site for research, and community-led research, which actively empowers community members to enact ownership throughout the research process, with community members defining the meaning, scope, and goals of data, participating in making sense of data, and mobilizing with data toward structural transformation (Dutta, 2007, 2018; Scharrer & Ramasubramanian, 2021). The CCA inverts hegemonic communicative inequality by re-framing the meaning of data, situating data in community voices, community ownership, and community participation in meaning-making (Dutta, 2018). For instance, in the "Voices of Hunger" interventions co-created by communities negotiating food insecurity across India, Singapore, the USA, and Aotearoa New Zealand, the definition and ownership of data by communities at the margins shape the emergent communication interventions as communication advocacy to address policies promoting universal food security (Dutta et al., 2013).

In today's AI-driven technological landscape, data-driven algorithms are central to media and technology. These codes and algorithms often replicate neoliberal capitalist heteropatriarchal systems of colonialism (Couldry & Mejias, 2019; D'Ignazio & Klein, 2018; Dutta et al., 2021; Milan & Treré, 2019; Tacheva & Ramasubramanian, in press). Amidst the

accelerated proliferation of platform colonialism through the commoditization of extracted data and hyper-individualization of labor, culture-centered processes offer anchors for data justice through algorithmic accountability (Noble, 2018; Weiringa, 2020) and platform cooperatives and labor organizing as the basis for owning, designing, making sense of, and mobilizing data (Chen, Delfanti, & Phan, 2023). Rooted in the claims raised in voice infrastructures at the global margins, community-owned data serve as the pivots that drive advocacy and activist interventions (see Dutta, 2019a, 2019b; Dutta et al., 2019; Ramasubramanian & Sousa, 2021).

The erasure of communities' communicative capacities and knowledge systems is intrinsic to perpetuating the (neo)colonial, racial capitalist project. The theorization of the interplays between communicative inequality and structural inequality shapes community organizing in the CCA, driven toward structural transformation. The co-creation of voice infrastructures serves as the basis for generating knowledge claims that are rooted in community life and emergent from the cultural context of everyday life within the community (Dutta, 2019a, 2019b; Ramasubramanian & Sousa, 2021; Ramasubramanian et al., 2020). Data, thus, are constituted within the broader organizing for epistemic justice, with communities shaping the processes of activism and advocacy for structural transformation (Dutta et al., 2019; Sastry et al., 2021; Ramasubramanian & Sousa, 2021).

Data justice, then, for us, is not simply about questions of data epistemology but also about how they can be used toward the intentional disruption of structural inequality. It means being conscious and intentional about how data are gathered, analyzed, and disseminated at every stage of the community-centered project, with community ownership driving the data-gathering process. We build upon the last two decades of community-led projects based on the CCA theoretical approach at CARE (Dutta, 2004) directed by Mohan Dutta and by Srivi Ramasubramanian at Media Rise (www.mediarisnow.org), The Difficult Dialogues Project (www.difficultdialoguesproject.org) and CODE^SHIFT lab (www.drsvrivi.com/codeshift) focus on how communication can be used as a means of addressing structural communicative inequalities by centering culture and voice in the theorization, organizing, gathering, and mobilization of data for structural transformation. For instance, in the organizing work of transgender sex workers in Singapore under the umbrella of the civil society organization Project C, the collaboration with the CARE resulted in the co-designing of the research questions, co-creation of data, collaborative meaning-making, and building a communication campaign that centered the stigma and violence experienced by transgender women (see the Stiletto Project page). The data scaffold the video narratives, images, and texts that constitute the voice infrastructure of the campaign, disrupting the silences around transgender sex work and violence in public spaces of authoritarian state control (see Dutta & Mahtani, 2020).

The CODE^SHIFT Model

The CODE^SHIFT Model builds on the CCA (Dutta, 2004, 2008) to engage issues of data justice through the lens of quantitative criticalism (Dutta et al., 2021; Scharrer & Ramasubramanian, 2021; Tacheva & Ramasubramanian, in press). CODE^SHIFT stands for Communication & Data Equity for Social Healing, Inclusive Futures, and Transformation.

CODE[^]SHIFT is a play on the word “code” which stands for coding, data, and digital technologies. This model emphasizes collaborative interventions centering data equity in communication through storytelling, media, technology, art, and design. The word “shift” in CODE[^]SHIFT emphasizes a need for intentionality and purposive disruption from the status quo to achieve data justice.

Data justice is a goal, tool, and organizing strategy to address epistemic and structural inequalities within the CODE[^]SHIFT Model. We are focused on community-led social transformation that addresses communication inequalities. We consider a variety of data such as storytelling, oral histories, dialogues, town halls, feedback forms, government records, public deliberation, mass media, social media, public art, and performances within the scope of data justice. The model engages with communication-oriented projects to improve technology access, close digital divides, seek algorithmic justice, address symbolic annihilation, attend to data erasures, challenge exclusionary communication policies, and counter other systemic communication inequalities within/for/along with those in the Global and local Souths in various communities around the world (see websites for CARE, Media Rise, The Difficult Dialogues Project, and CODE[^]SHIFT for additional details).

This model theorizes the principles and processes within data-driven community-engaged research with social justice and structural transformation as its end goal. It foregrounds the principles of equity-mindedness, collective action, purposiveness, and systemic change through data-driven interventions that focus on long-term capacity building, communication infrastructures, and inclusive policy-making.

In Figure 1, the four “hands” of the pinwheel stand for four core principles of community-engaged scholarship, which are (a) equity-mindedness, (b) collective impact, (c) purposiveness, and (d) systemic change. The areas just outside the pinwheel represent the four stages or the processes involved in working collaboratively toward long-term changes: (a) identifying pressing social issues; (b) bridging for cross-sector coalitions and partnerships; (c) organizing collective impact activities; and (d) sustaining through capacity-building and social transformation. Finally, the outermost area of the figure stands for the data ecosystem within which these principles and stages of social transformation are situated. Data are conceptualized here as pluriversal, embodied, sacred, sovereignty, disruption, solidarity, and impossibility.

Key principles of the CODE[^]SHIFT Model

The key principles of the CODE[^]SHIFT model are described below: equity-mindedness, collective impact, purposiveness, and systemic change.

Equity-mindedness

The first principle of equity-mindedness is about engaging with historically marginalized communities since our goal is to address communicative inequalities in the distribution of information and voice resources (Dutta, 2004). Equity-minded means that one needs to be vigilant and constantly interrogate how power, privilege, and biases might shape priorities, values, and resources within the collaboration. For instance, white Western middle-class heterosexual privilege might shape how researchers approach, say, HIV patients in low-income groups in the Global South. Similarly, the interplays of power and whiteness shape how the concept of

community is constructed in hegemonic community-based participatory interventions driven by funder agendas and priorities (Dutta, 2007). Constructions of the language of decolonization by caste-privileged Indians in elite universities in the West erase and undermine the embodied struggles for land rights mobilized by Adivasis. The CCA recognizes that communities are unequal spaces, with multiple layers and textures of power flowing even as they negotiate the broader colonial, capitalist, patriarchal structures (Dutta, 2018, 2019a). Moreover, the CCA suggests that communities are dynamic spaces for contestation where diverse interpretive frames are negotiated and debated. The equity-mindedness in the CCA draws upon the concept of communicative inequality to theorize “margins of the margins,” offering a critically reflexive praxis that continually interrogates power (Ramasubramanian & Banjo, 2020).

We need to ask how we can ensure that those who are traditionally and historically marginalized are equitably represented in the data and are empowered to design, co-create, and use data infrastructures (Ramasubramanian & Banjo, 2020; Scharrer & Ramasubramanian, 2021). For long-term change, we have to understand how inequalities and injustices came to be from a historical perspective that often leads to generational and cultural trauma through repeated erasures and exclusions over time (Ramasubramanian et al., 2021). It also includes learning about previous attempts to disrupt power inequalities and how they might have fallen short of their goals.

Collective impact

Social transformation is not possible without collective efforts. We do so through building coalitions and partnerships, which is reflected in the second principle of collective impact. In using a collaborative and participatory design, we especially emphasize the need to include communities that are most negatively affected by the communicative injustices within the research process. Typically, top-down intervention models of communication bring community members into the process only after strategy and activities have already been discussed, determined, and designed. With the previous principle of equity and inclusion in mind, partnerships and coalitions should include those who might have been historically excluded and those who might challenge the status quo. Furthermore, the process for transformation should move toward co-creating communicative infrastructures and processes that empower communities as owners and users of data. This can include community-led processes for auditing algorithms (Hintz et al., 2023) and co-creating voice infrastructures to challenge digital hate (Rahman & Dutta, 2023), and including during the COVID-19 pandemic (Ramasubramanian et al., 2020).

Marginalized group members should not just be brought into the collaboration simply as token representation but to genuinely participate in the process of shared decision-making. Bringing about long-term social transformation requires mobilizing and catalyzing action within various local organizations at the grassroots level. Collective impact need not always be local (Ramasubramanian et al., 2020). It needs to go beyond shallow identitarian performances to focus on community organizing and mobilization, attending to the classed contexts of inequalities and seeking to build socialist infrastructures committed to the redistribution of economic resources.

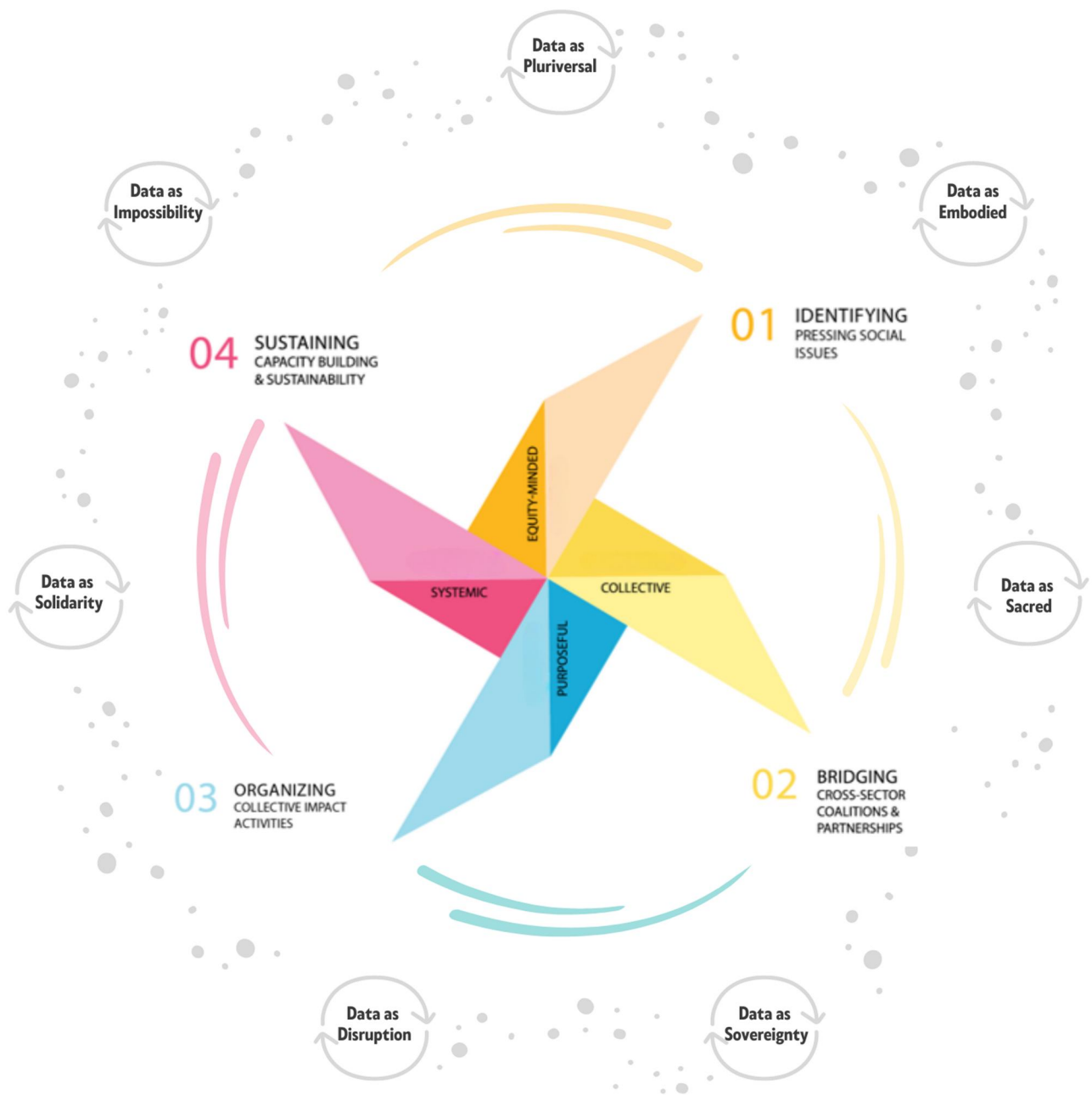


Figure 1. The key principles and stages of the CODE[^]SHIFT Model.

The CCA conceptualizes and builds community advisory groups (CAGs) within communities at the global margins as a way of centering community collaborations as the drivers of data-based social change (see [Dutta & Mahtani, 2020](#); [Elers & Dutta, 2023](#), as examples). Through multiple iterative meetings, the CAG defines the scope of the problem, the research questions to be asked, the types of data to be gathered, and ways to collectively make sense of data to build the activist intervention ([Dutta, 2018](#)). For instance, in the organizing work with low-income foreign domestic workers in Singapore, the CAG shapes the research questions exploring the structural challenges that shape the precarity of domestic work, makes sense of the emergent narratives, and co-creates the communication intervention based on the data ([Dutta & Kaur-Gill, 2018](#)). Once the data have been gathered and

analyzed, the CAGs guide the development of policy briefs for policy mobilization (see [Dutta & Mahtani, 2020](#)).

Purposiveness

The third principle is purposiveness, which means that we must be strategic and intentional in our collaborations as responsible stewards of community resources, including data. In other words, the purpose must be put at the model's center and core of strategic thinking. This means we are strategic and intentional about how data are collected, handled, interpreted, and shared. There might be several existing initiatives and organizing efforts in the same community or similar ones that should be strategically coordinated and aligned. Data sovereignty and shared governance provide agency to communities to decide for themselves how and when they would

like to gather, analyze, and share their data. Data and stories are to be honored as sacred knowledge that community members should have the agency to decide whether they would like to share them.

Another aspect of purposiveness is centering care within the collaboration. It is essential to avoid retraumatization by giving community members the agency and choice in how, whether, and when they share their data and with whom under what conditions. Being intentional and caring in interactions with the community could also look like sharing materials available in multiple languages, meeting at spaces and times that are most convenient to them, providing child care during community dialogs, and avoiding unnecessary jargon in communication. Most importantly, the concept of care within the collaboration is shaped by community members defining the research process and overarching framework in the form of the CAG.

Systemic change

Finally, our goal is long-term sustainability and systemic changes, including social infrastructures through capacity building and policy changes. Rather than focus only on individual-level change behaviors, we consider an ecosystems perspective by engaging with meso-systems such as family and community organizations as well as macro-systems such as government and media systems. Data must be action-oriented in terms of transforming the material conditions and lived realities of those most impacted by inequalities.

It takes time, patience, perseverance, and continued efforts to change laws, practices, and policies. This also means being willing to bring about cultural changes within the community, workplaces, families, and other social institutions. Therefore, it is not sufficient to stop with a one-time intervention or program but to sustain these efforts in the long term. Another important aspect of sustainability is the real possibility of backlash, threats, harassment, co-optation, and other such strategies that those in power might use to maintain the status quo. This is why involving community members from the initial stages to take into consideration the long-term feasibility and sustainability of social transformation is crucial.

Stages of the CODE[^]SHIFT Model

Community-driven and justice-centered data are central to the four stages: (a) identifying pressing social issues; (b) bridging for cross-sector coalitions and partnerships; (c) organizing collective impact activities; and (d) sustaining through capacity-building and social transformation. Although we present these stages as four distinct steps of the change process, in reality, community-based interventions are messy, dynamic, and complex. Therefore, these stages often overlap with one another, occur in different sequences, and are iterative rather than progressive.

The four principles of equity-mindedness, collective impact, purposiveness, and systemic change that were described in the previous section apply to the entire change process. However, their emphasis varies from stage to stage of the change process. For instance, collective action is foregrounded in the “bridging cross-sector partnerships” stage, and “systemic change” is brought into sharp focus in the final stage of “sustaining social transformation.” Depending on the project, partnership, and/or intervention, each of these

stages could take several months to years to complete. For culture-centered interventions, long-term commitments based on decolonizing registers of relationships are critical to organizing around data justice. For instance, one of the earliest culture-centered interventions with the Indigenous Santali communities in the Jhargram region of West Bengal is in its twenty-seventh year, having grown across 132 Indigenous villages (see Dutta, 2004). The emergent interventions generated in community spaces gather and make sense of data to build community-led petitions to build sources of clean drinking water, community-owned spaces for sharing, learning, and teaching intergenerational Indigenous cultural practices, community-led Indigenous language schools, irrigation systems, roads, and community-led interventions that challenge the far right Hindutva forces of hate (CARE, 2023).

Below, we expand on each of these four stages of the CODE[^]SHIFT Model. Within each stage, we explain the goal and objectives of that stage of the research process. For each of these stages, we provide examples and case studies from existing research projects to illustrate how data equity looks within the specific contexts of communities that we have worked with. Specifically, we take a data equity lens to examine what types and approaches to data could be especially useful in each stage of the change process. For example, in the “identifying pressing social problems” stage, archival data and community-asset mapping might be much more beneficial while in the “bridging cross-sector partnerships,” dialogs across different stakeholders could play a crucial role.

Identifying pressing social issues

In this first stage of the community-engaged research process, the goal is to identify what the most pressing social problems are and to understand the root causes of these problems. In the CCA, the CAG offers the communicative infrastructure where decisions are made (see, for instance, Elers & Dutta, 2023). Using trauma-informed approaches such as empathetic listening and shared storytelling, community members co-define and prioritize social problems faced by the community (Ramasubramanian et al., 2017, 2021). Shared storytelling helps voice, validate, witness, and value the wisdom within the community. Data, such as brainstorming sessions, in-depth interviews, listening sessions, need assessment surveys, content analysis of media framing, scoping reviews of published literature, community asset mapping, archival records, government reports, census data, and oral histories to help understand historical, socio-economic, cultural, technological, and systemic barriers at the micro-, meso-, and macro-levels.

Within the Difficult Dialogues Project (Ramasubramanian et al., 2017; Ramasubramanian & Wolfe, 2020, 2023), the goal was to address campus racism through a data-driven community-engaged approach. In the first stage of this project, the types of data that were collected were hyper-local real-world examples of racial microaggressions from within the community using surveys and journaling methods. This was supplemented with other community data such as reports from campus organizations and shared storytelling (such as oral histories, conversations with those within the community, etc.). We also looked at archival materials through newspaper articles and student organizations’ documents to help collect stories and experiences of racial microaggression on campuses. These community-owned data helped map out the sociocultural contexts and histories

within which the pressing issue of campus racism needed to be defined, traced, and contextualized.

Bridging for cross-sector partnerships and coalition-building

Within community-engaged research, large-scale changes are impossible without such collaborative networks. At this stage, we emphasize mapping existing collaborations, dialogical exploration, and shared responsibility for solutions. The types of data that are likely to be helpful are dialogs, focus group discussions, community advisory boards, participatory processes, public deliberation, pre-meetings with gatekeepers, and Memoranda of Understanding (MoU) that help to build connections, coalitions, and networks of support. For instance, action-oriented dialogs can help build rapport and trust among various community members. Within the Difficult Dialogues Project, community dialogs have been effective in bringing different stakeholder groups such as students, staff, faculty, and administrators from various disciplines and racial backgrounds into conversation with one another to engage with points of difference and explore new practices and policies to bring about social change (Ramasubramanian et al., 2017; Ramasubramanian & Wolfe, 2020; Ramasubramanian & Wolfe, 2023).

Another way to bridge various groups is through CAGs with members consisting of decision-makers, content experts, and those with lived experiences who help to co-design strategies. As we center participation and collaboration in this stage for coalition-building, we emphasize active listening, especially to those groups that are most impacted and marginalized or silenced within society. For instance, in the organizing of low-wage migrant workers in Singapore against the extractive structures of the authoritarian state, the CAG at the margins negotiating health risks is vital to defining the problem, designing the research framework, analyzing the data, and organizing for change based on the data (Dutta, 2017a, 2017b). The knowledge generated by the CAG resists and decenters the technocratic authoritarianism of smart decision-making deployed by the city-state to surveil, manage, and control workers. In co-creating a campaign based on their lived experiences of struggles with hunger, workplace health risks, poor working conditions, racism at the workplace, and challenges with transportation, the CAG draws on partnerships with activists and civil society organizations. The “Respect the food rights of workers” campaign emerged from this collaboration, foregrounding the food insecurity experienced by migrant workers in Singapore (<https://carecca.nz/research/care-projects/care-projects-foreign-construction-workers-singapore/>).

Organizing collective impact activities

Community organizing for small-scale collaborative initiatives is emphasized in this stage. Working groups, social media campaigns, community workshops, shared governance structures, proof of concept initiatives, and incubation programs help align initiatives through a shared agenda, gathering community feedback, and learning what works within the socio-cultural-political contexts. Centering purposiveness and intentionality, we identify, align, and use available resources within the collaborations formed in the previous stage. Consider here how culture-centered organizing embeds data in the collective organizing process. For instance, gathering data on the settler colonial practices of land grabbing is placed within the organizing of Māori communities in Aotearoa New Zealand in land occupations

(Mika et al., 2022). Community leadership in co-creating the research design, leading the data gathering process, and documenting the effects of land loss on health serve as the bases for organizing to resist land theft as climate colonialism (Dutta & Hau, 2020; Elers & Dutta, 2023).

Communication and data can help to mobilize resources, engage a broader public, and coordinate mutually reinforcing activities for collective action. Through emergence, flexibility, and responsiveness, data are used to garner collective efficacy through small wins and refine the communication intervention. For instance, community-driven initiatives such as the *Media Rise* project have mobilized media activists, artists, educators, and policymakers to promote meaningful media through a series of media interventions such as community workshops, film festivals, youth media literacy programs, and seed funding for community-oriented media projects (see www.mediariise.org).

Sustaining through capacity-building and social transformation

Building on existing successes and feedback mechanisms, the communication infrastructure is expanded. The goal here is to use data to mobilize funds, build capacity, strengthen resilience, and advocate for policy changes and sustainable solutions. This could involve a variety of data sources such as policy research, public media engagement, mentoring programs, leadership development, community capacity-building, social network analysis, multidisciplinary multi-site grant projects, longitudinal studies, and impact analysis. Here, public media engagement typically involves various forms of multimodal scholarship such as performances, podcasts, Facebook campaigns, YouTube videos, TikTok videos, photo exhibitions, community newsletters, and other forms of community-led media.

Through all these stages, the participation of communities at the global margins in defining the scope of the data and the rules for retaining data sovereignty is key to the mobilization of justice-based knowledge claims. For instance, the organizing of Dalit, largely landless, women farmers in *sanghams* (referring to cooperatives) for seed sharing under the Deccan Development Society (DDS) in Telangana, India is built on the co-creation of voice infrastructures through community radio and video-based storytelling (Dutta & Thaker, 2020). Dutta and Thaker offer the concept of communicative sovereignty, noting the key role of ownership of communicative resources and spaces by local and Indigenous communities to be able to share knowledge, share stories, and narrate data that challenge the forces of capitalism and colonialism. Data gathered by Dalit women farmers on planning, yield, seed health, soil nutrition, climate adaptation, and cost relating to locally grown crops such as millets are placed in conversation with the hegemonic articulation of yields of Biotechnology-based (Bt) cotton.

Conceptualization of data in the CODE[^]SHIFT Model

Data justice is not just the goal but is essential to every stage of the CODE[^]SHIFT Model. Below, we highlight the implications of the CODE[^]SHIFT Model for data justice within Communication research (see Figure 2) by conceptualizing data as pluriversal, embodied, sacred, sovereignty, disruption, solidarity, and impossibility.

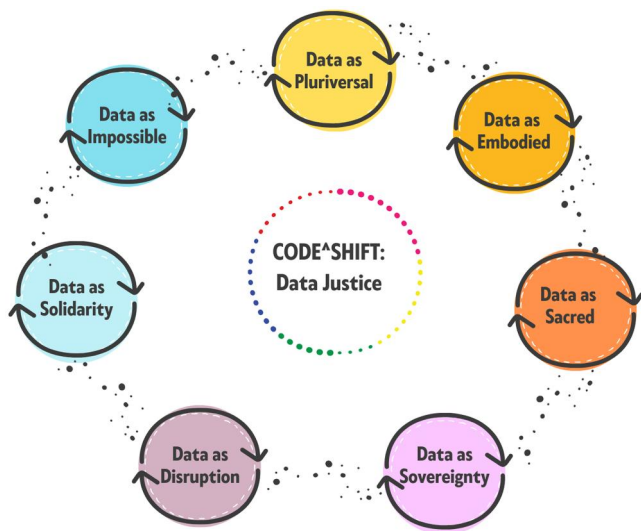


Figure 2. Conceptualization of data justice within the CODE[^]SHIFT Model.

Data as pluriversal

We expand on the concept of “data” within Communication research to go beyond traditional definitions of data (such as interviews, surveys, and experimental data) to also include other forms of community-led data for social movements, organizing, and resistances such as dialogs, archival reports, community asset maps, oral histories, public art, murals, songs, dances, graffiti, Facebook groups, YouTube videos, photo exhibitions, spoken word poetry, and street theater (see CARE, 2023; Media Rise, 2020; Ramasubramanian et al., 2020). Taking a community-centered approach to data means being open to these “non-traditional” forms of data that are often dynamic, multimodal, and informal. It decenters the whiteness that shapes the parochial forms of data in broader disciplinary terrains. For instance, for the Dalit women farmers singing the songs sharing local knowledge about seeds, the verses of the songs are data that serve as communicative registers challenging the epidemic of farmer suicides brought about by the large-scale neoliberal transformation of agriculture.

Data as embodied

Humanizing data means that data are not abstract concepts but are embodied. Data are people. They represent humans and bodies, and human beings participate in the generation of data. The recognition of data as embodied places the academic into relationships, communities, and conversations, holding academics accountable to relationships and communities. The CODE[^]SHIFT Model puts forth the concept of the “body on the line,” delineating the role of academics in lived community struggles at the “margins of the margins,” working alongside communities to bring about structural transformation (Dutta et al., 2019; Ramasubramanian & Sousa, 2021). Salter & Dutta, (2023) call upon scholars to place their bodies amidst struggles against climate colonialism by highlighting the role of Indigenous-led data to challenge neoliberal land grab.

Data as sacred

From an Indigenous perspective, data are situated in relationships and require care and safety (Dutta, 2004; Kukutai &

Taylor, 2016; Marley, 2019). Not all stories or any form of data need to be shared, especially without consent. Indigenous ownership foregrounds relationships, care, community, and sacredness as the axes for shaping decisions about the sharing of data (Kukutai & Taylor, 2016). While media and technological spaces make it easier to preserve sacred knowledge, community members should have the agency to determine whether, when, to whom, and how they would like to share data. Media and other communication spaces offer visibility to marginalized groups, and data can play a critical role in voicing issues that are important to communities at the margins. Thus, data justice does lend itself to making visible those who are otherwise erased and underrepresented. However, there are many reasons why hypervisibility can lead to exploitation, harm, and violation of sovereign and sacred knowledge. This is especially true for those in precarious positions, for whom certain types of data that are made visible could lead to harm, including physical violence, loss of livelihood, and financial instability.

Data as sovereignty

For Indigenous struggles and struggles of local communities in the Global South, the ongoing theft of knowledge, land, cultural bodies and practices, genetic material, and forms of livelihood as data constitute the infrastructures of biopiracy (Dutta & Pal, 2020; Kukutai & Taylor, 2016). In this context, the sovereignty over data held by Indigenous and local communities lies at the core of resisting the colonial-capitalist project. Indigenous-led definitions and organizing frameworks of data sovereignty draw on practices of data sharing and data governance rooted in Indigenous knowledge to develop regulatory practices around data (Kukutai & Taylor, 2016; Marley, 2019). Similarly, in the context of the ongoing hyper-exploitation of workers in the platform economy, organizing of workers to own the data gathered from their participation on the platform in the form of platform cooperatives and worker-owned platform initiatives depict the openings for transformation (Grohmann, 2022). The organizing of low-wage migrant workers in building the digital architectures of smart cities around worker rights locates data justice in voice infrastructures (Dutta, 2021). Drawing on the CCA, we suggest that data sovereignty is intertwined with communicative sovereignty and narrative sovereignty, the ownership of local and Indigenous communities at the global margins of communicative infrastructures where they can narrate their stories and simultaneously retain ownership of knowledge (Dutta & Hau, 2020).

Data as disruption

We take a structural data justice perspective that is not only interested in examining how social structures shape data systems but also how data could be used to disrupt structural violence and bring about institutional change (Ramasubramanian & Sousa, 2021). Across a range of culture-centered community-led interventions, narrating everyday lived experiences through images and video disrupts the hegemonic narratives crafted by the state-capitalist nexus (CARE, 2023). For instance, in the organizing of households negotiating poverty in an advisory group in Singapore put together under the umbrella of CARE, the organizing frame of “Singaporeans left behind” disrupts the authoritarian narratives of universal housing and trickle-down benefits crafted by the authoritarian state (see Dutta et al., 2016; see <https://www.facebook.com/people/No-Singaporeans->

[Left-Behind/100064591426408/](#) for the social media page of the campaign). The narratives emergent from and embedded within the data, presented in the form of a white paper co-created with the CAG and intertwined with the ground-up advocacy campaign (that includes a documentary, advertising on print media, video stories, and a Facebook page) is placed on mainstream media, with mainstream media stories offering detailed coverage to the narrative. Data, co-created and shaped by the CAG of community members struggling with poverty in Singapore, disrupts the silence around poverty in Singapore shaped by the authoritarian state's out-of-bounds markers (George, 2012).

Data as solidarity

Solidarities at the margins, drawing on data, emerge as sites for voicing justice, as evidenced in worker organizing against platform capital, Indigenous organizing against climate colonialism, and migrant organizing against worker exploitation (Dutta & Kaur-Gill, 2018; Salter & Dutta, 2023; Yu et al., 2022; Ramasubramanian & Sousa, 2021). Data co-created by academics in partnerships with communities at the global margins build the registers for solidarities in struggles against capitalist-colonial oppressions evident across the various examples of culture-centered interventions offered in this manuscript (Dutta et al., 2019). Data-based solidarity supports marginal communities' abilities to draw on data to voice policy positions, challenge the violations of policy, and mobilize to advocate for policy changes (Dutta et al., 2019; Salter & Dutta, 2023). For instance, the voicing of the experiences of food insecurity in Singapore disrupts the authoritarian state's silencing of conversations on poverty (Dutta et al., 2016). Moreover, academics and activists who do the work of generating data to support struggles are often the targets of systematic campaigns run by those in power (Dutta & Pal, 2020). It is therefore critical to simultaneously consider how our collective organizing, working alongside our associations and unions, can build registers of solidarity with academics-activists asking critical questions.

Data as impossibility

Our analysis and critical reflections on our participation in community-led transformative processes render visible the impossibility of data in the hegemonic structures of knowledge generation within the discipline, calling for the cultivation of habits of humility, listening, and critical reflexivity. Social justice movements are inevitably co-opted by dominant hegemonic forces, including within data justice. The reductionism of whiteness underlying colonial-capitalist hegemony over data means that the very definitions and criteria that are imposed on data erase the voices of communities at the margins and the transformative processes of social change. Those in the margins have to be vigilant, flexible, and fluid since the constraints of hegemony render data justice an alluring mirage that is often eventually impossible to attain. What is seen as data and what is counted in the academic structures of knowledge generation, on the one hand, perpetuates Eurocentric colonialism, and on the other hand, systematically erases the organizing labor of Indigenous and local communities at the global margins struggling against the forces of colonialism and capitalism. In communication studies, the disciplinary whiteness, alongside US-centric imperial hegemony that defines the gatekeeping processes of academic journals, perpetuates the erasure of voices of local and

Indigenous communities at diverse intersections of the global margins (Rodriguez et al., 2019). Even as conversations on decolonization and marginalization are centered, the voices and the labor of the communities at the margins remain erased. Metrics for merit, tenure, and success within Communication are often narrowly defined as publication in top-tier communication journals, h-indices, citations, and conference presentations. This systematically and structurally erases the labor and knowledge of those working on "non-traditional" forms of community knowledge, public scholarship, and processes for social transformation, organizing, and community-building. Recognizing data as an impossibility nurtures humility, based on the recognition that the scope of what counts as data, defined within hegemonic structures, inevitably misses out on lived experiences and narratives that fall outside the scope of the definition. This recognition of the impossibility of data calls for continual critical reflexivity asking "Which voices are not present here?" and "How can we invite these voices in?" (Elers & Dutta, 2023).

Conclusion

The CODE[^]SHIFT theoretical model we present in this article builds on CCA research from the last two decades (Dutta, 2004, 2008, 2018; Dutta et al., 2019) to take an anti-colonial, anti-capitalist data-driven approach to bring about voice and communicative infrastructure changes to address inequalities within local and global contexts. The model we present aims to bridge divides between theory and practice within communication as well as between data sciences and community-engaged social justice scholarship overall. It challenges post-positivist and colonial conceptualizations of data as commodities for hyper-extraction to present decolonial and community-led data model for social transformation.

The model identifies the key principles of equity-mindedness, collective impact, purposiveness, and systemic change that guide such theorizing. It elaborates on the role of data in four overlapping stages of community-centered research for co-creating and sustaining communicative capacities within marginalized communities: (a) identifying pressing social problems, (b) bridging cross-sector coalitions and partnerships, (c) organizing for collective impact activities, and (d) sustaining capacity building and social transformation. It offers an alternative approach to data-driven theorizing in Communication that sees data as pluriversal, embodied, sacred, sovereignty, disruption, solidarity, and impossibility. We include case studies and examples from our community-engaged grassroots projects over the last two decades to illustrate how data can be used in intentional and strategic ways in every stage of the change model to bring about sustainable social transformation. Overall, we argue for a broader definition of "data" within communication theorizing that goes beyond traditional post-positivist approaches to data.

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Data availability statement

No data are available to go with this article.

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