Social Justice-Oriented Interaction Design: Outlining Key Design Strategies and Commitments

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ABSTRACT

In recent years, many HCI designers have begun pursuing research agendas that address large scale social issues. These systemic or "wicked" problems present challenges for design practice due to their scope, scale, complexity, and political nature. In this paper, we develop a *social justice orientation* to designing for such challenges. We highlight a breadth of design strategies that target the goals of social justice along six dimensions – *transformation, recognition, reciprocity, enablement, distribution,* and *accountability* – and elaborate three commitments necessary to developing a social justice oriented design practice – *a commitment to conflict, a commitment to reflexivity, and a commitment to personal ethics and politics.* Although there are no easy solutions to systemic social issues, a social justice orientation provides one way to foster an engagement with the thorny political issues that are increasingly acknowledged as crucial to a field that is not just about technological possibility, but also about political responsibility.

Author Keywords

Social justice, social change, design, interaction design, politics of design, social issues

ACM Classification Keywords

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

INTRODUCTION

In recent years, members of the design and HCI communities have shown increased interest in addressing large-scale social challenges through their design and research practices. These research and design agendas include projects focused on economic and social development [64, 116], sustainability [33], food insecurity [35], homelessness and housing [7, 78, 122], street harassment [28], and domestic abuse [22, 29]. Such systemic or "wicked" problems [75] present new challenges for our theoretical and design practices, in part due to their

scale, scope, and complexity [see also 12]. Moreover, as noted by design and urban planning scholars Rittel and Webber, wicked problems are also characterized by their lack of a clear objective answer or solution. Rather, interventions in these kinds of complex social issues always raise questions of privileging some values and stakeholders over others [104]. Research and design projects that examine or intervene in large scale social issues thus require scholars to engage directly in (or against) both state (*e.g.* laws, the national-social politics of welfare programs) and personal level politics (*e.g.* the implicit and explicit ethical and moral stances of designers, research participants, and funding agencies). Grappling with these politics is particularly challenging given the field's historical inclinations towards treating technological development as unquestionably progressive, or approaching research and design in an apolitical and ahistorical manner [see critiques by 9, 83, 123]. The recent growing interest in research related to large scale social issues underscores the imperative to heed more general calls for HCI researchers and designers to ask not only what is technologically possible, but also how to design ethically, responsibly, and with accountability – and to thoughtfully consider whether design is even an appropriate intervention in a given situation [8, 9, 12, 14, 32, 33, 43, 60, 83, 111, 114]. In this paper, we develop *social justice-oriented interaction design* as one response to these concerns and provocations.

Design is inherently about change – not just in the creation of new material artifacts, but in the ways that new technological objects afford new practices, social habits, and ways of living and interacting. As design scholars Dunne and Raby write, design is always engaged in a process of "changing reality rather than simply describing it or maintaining it" [39]. However, progressive change does not happen naturally. As Bardzell and Light argue, a focus on designing for the status quo – *e.g.*, for what a majority of research participants already want or need – often leads to the re-entrenchment of problematic inequalities and power relations, privileging elite social groups and marginalizing others [9, 83]. In this paper, we argue that an explicit engagement with social justice can help guard against this tendency, and facilitate more equitable social change by providing a set of strategies and commitments to guide

design practice in favor of polyvocal participation in mechanisms for social change.

Broadly speaking, taking a social justice approach means attending to the ways that individuals experience oppression, including how benefits, burdens, obligations, power, opportunity, and privilege have been (in)equitably distributed within society. As an *orientation* to design – rather than a specific technique or method – the approach described in this paper differs from prior methods such as value-sensitive design and participatory design. Often these methods are compatible with social justice and might be used as part of a social justice oriented design practice. However, rather than a new method, a social justice *orientation* might be thought of as a constellation of modes and sensitivities, including a mode of knowing and relating, and sensitivities to inequality and marginalized voices. In the literature review, we draw on a multi-faceted definition of social justice [85] because it helps attune the researcher or designer to the various ways that social issues can manifest throughout a design practice. When intervening in complex social situations, we acknowledge that there is rarely a clear 'right' answer. Thus, we also understand social justice as a horizon to work towards; an always ongoing process and practice rather than a clearly defined utopia that offers itself up for idealized achievement. Rather than centering on a particular set of values, a social justice orientation centers on a commitment to a design practice rooted in conflict, participation, and politics. It is an approach, orientation, sensitivity, and mode of work that must be carried through the entirety of a design practice, across and between multiple projects, and throughout the process of any one project – from problem framing to participant engagement.

In the rest of this paper, we first give a brief introduction to social justice as a concept rooted in political philosophy, outline some of its multiple histories, and articulate a working definition of social justice that emphasizes its multi-faceted nature by drawing on the work of political philosopher H.P.P. Lötter [85]. We then review a subset of recent HCI work that engages with large scale social issues. Drawing on cases from sustainability, ICTD, and community informatics, we show how a social justice orientation offers a response to existing open questions, and also raises important new challenges for research. In the latter half of the paper, we highlight concrete strategies for practicing social justice-orientated interaction design. These strategies target the goals of social justice along six dimensions: *transformation*, *recognition, reciprocity, enablement, distribution,* and *accountability*. Although there are no easy solutions to systemic social issues, we draw on our own and others' design research to show how a social justice orientation provides one way to directly and responsibly engage the ethical and moral issues that are increasingly acknowledged as central to the future of HCI. In the closing discussion, we reflect back on these practical strategies through the articulation of three personal commitments vital to the ongoing work of practicing design from a social justice orientation: *a commitment to conflict, a commitment to reflexivity,* and *a commitment to personal ethics and politics*.

BACKGROUND

The term 'social justice' is often attributed to Luigi Taparelli D'Azeglio, an Italian Jesuit philosopher of the mid-1800s whose work was based on the teachings of St. Thomas Aquinas [125]. Though, as others note, it is far more likely that the concept(s) predated the term [*e.g.*, 115]. Since the end of the second world war, western political philosophers, most notably John Rawls, have adopted the term to refer to formulations of justice that center on the ongoing – and always incomplete – attempt to balance the benefits and burdens of a social system such that they are fair or equitably shared [103; See also, 48, 69, 87, 94, 96, 110, 120]. While prior conceptions of justice often centered on abstract assessments of a system's morality with respect to some ideological grounding, Rawls' concept of social justice centered on the assessment of a system based on *the perspectives of those subject to its control* [103]. Though widely referenced, subsequent critique of Rawls has highlighted his persistent silence on race, which is all the more problematic given that he was writing within the United States, a society built on 'white privilege' and the racial subordination of non-white peoples [88]. Thus, we can begin to see that social justice might best be understood not as a single concept, but as a constantly evolving mechanism for thinking through how power, privilege, and access affect social structures.

While we focus on social justice, it is beyond the scope of this paper to discuss social justice in all of its complexity. There are many different types of social justice, no single, agreed-upon definition, and no clear consensus on how to work towards it or to verify its achievement. For the purposes of understanding what social justice means for design practice, we pragmatically adopt a concept of social justice developed by contemporary South African political theorist H.P.P. Lötter. In doing so, we are not holding his conception above any other, but find this framework useful in the exercise of thinking through social justice and its relationship to design by attending to multiple facets of this complex and unstable concept.

Lötter argues that social justice in the context of modern constitutional democracies is a "cluster concept" [85], a framework that is multi-dimensional by nature. His conceptualization thus accounts for multiple, contiguous aspects of justice. In grappling with the philosophical adage "justice is to give everyone their due" (and its inherent normativity), he formulates six dimensions of justice: *recognition*, *reciprocity*, *enablement*, *distribution*, *accountability*, and *transformation*. The multi-dimensional aspect of Lötter's definition is particularly useful for our purposes because it allows us to highlight concerns of social justice as they intersect with multiple moments and

encounters within design practice. We will elaborate on specific sensitivities of each dimension later in the paper when we outline corresponding strategies for practicing social justice oriented interaction design. At its core, Lötter's conception of social justice centers on the social concerns, obligations, and ethical commitments created through social interactions. Drawing from this work, we note that social justice explicitly takes into account how historicity, identity, and social and political context (*e.g.,* class, race, gender, ability, health and wellness, and so on) impact people's lived experiences. This definition is compatible with work such as [21, 23, 25, 86], and – especially important for our purposes – is inclusive of concerns about how technology is designed and developed, how policy impacts information and communication practices and experiences, and how marginalization and oppression impact people's experiences of and practices with technology.

Design stands to play an important role within social change as ephemeral ideas about social justice are operationalized in processes of design, implementation, and use. As a philosophical concept, social justice provides one foundation for responding to open questions about how to conduct HCI design and research in ethically and politically responsible ways, and for developing specific strategies for engaging with the politics of design.

CASES: HOW A SOCIAL JUSTICE ORIENTATION CAN BENEFIT HCI DESIGN AND RESEARCH

HCI engages with large-scale social issues in a variety of domains, from education to health disparity. We believe that many of these domains could benefit from an engagement with social justice. In service of space and clarity, we examine only three such domains in this section. We take work in sustainability, ICTD, and community informatics as cases for showing how an engagement with social justice responds to open questions in socially-engaged design, and generates new concerns for future research.

Sustainability: From Individual to Systemic

Although emergent as a prominent research area only within the last decade, HCI research related to ecological concerns has exploded in recent years, and "sustainability" now owns a place in calls for participation as a targeted application domain (including at DIS 2016). In an extensive 2010 review of sustainable HCI, DiSalvo *et al.* showed that a vast majority of early research (70% of the works they examined) focused on designing tools or systems targeted at *individual consumers* with an additional (unreported) number of works targeted at individuals in some other capacity – *e.g.,* "as citizens rather than as consumers" [33]. This focus on the individual was well-aligned with another common theme found in their survey – an approach rooted in *persuasive design*. The intersection of persuasive design with a focus on individual actions characterizes a set of canonical projects in sustainable HCI: technologies designed to help users reflect on and alter their own

behaviors in order to consume less energy or water, produce less waste, or otherwise minimize their personal ecological impact [*e.g.,* 92, 76, 68; see also 20]. Scholars have since argued that a focus on individual choice neglects the complex social dynamics, economics, and politics that produce situations of (un)sustainability in the first place, thus limiting the broader impacts of design projects framed from this perspective [54, 20, 12]. Instead of identifying isolated problems that might be solved at the individual level, these scholars call for designers to grapple with sustainability "holistically" or "systemically." Partially in response to such calls, some recent projects have focused on designing for sustainability at the infrastructural level. For example, Pierce and Paulos [100] describe a "local energy indicator" focused not just on the individual, but instead on making visible the variable availability of distributed and renewable energy sources – such as solar and wind – within a larger energy grid.

Calls within HCI to address sustainability systemically echo the calls of researcher-practitioners in urban studies and regional planning who have faced similar challenges in the design of "green" cities. Researchers in these domains have shown that a de-politicized approach to designing for sustainability – even if 'at scale' and rooted in community-centric, and community-led models – does not "result in 'win-win-win' [119] outcomes for economic development, environmental improvement, and social equity" as once believed [51]. Instead, these scholars note that sustainability is "inextricably linked to human equality. Wherever in the world environmental despoliation and degradation is happening, it is almost always linked to questions of social justice, equity, rights, and people's quality of life in its widest sense" [2]. Thus, without a direct engagement with the concerns of social justice – explicit work to surface the "undercurrents of class, gender and race/ethnicity-based conflict around socio-ecological relations" – sustainability projects "often *reproduce* social inequalities" [51] and undermine their own transformative potentials.

These scholars propose the notion of "just" sustainabilities to describe sustainabilities that go beyond "green," and aim to "ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems" [2; see also 109]. This work suggests that addressing sustainability as a systemic rather than individual issue is not just a matter of "scaling up" in a quantitative way. It is not just about involving more people, or scaling up the site of design, *e.g.,* from individual behavior to infrastructural technologies. Rather, *just* sustainabilities demand new ways of accounting for difference and inequity at the societal scale as cornerstones of truly sustainable design.

Beyond critique, these researchers also provide models for mitigating and resisting the re-entrenchment of inequity. Goodling and Harrington [51] describe the case of a justice-oriented transformation of a "complete streets" initiative in

the city of Portland. When first introduced, the city-wide grant program offered technical and financial support to community groups seeking to make ecological and community-oriented improvements to local streets. Initially, however, applicants almost exclusively came from a small set of affluent neighborhoods. Recognizing that this disparity in grants was rooted in already-existing inequities – *e.g.*, having the time to navigate the grant program's bureaucracy or being a member of the social networks necessary to learn about the program in the first place – the city proactively changed program administration. In collaboration with graduate students at Portland State University, they began identifying and explicitly reaching out to underserved neighborhoods. Only with this explicit attention to equity within the administrative process was the city able to achieve the goals of the program – to enhance the ecological sustainability of the city as a whole.

Within HCI, Håkansonn & Sengers [54] have called for new attention to the relationships between sustainability and other social challenges such as the temporal, technical, and labor politics of contemporary capitalism. As they conclude, "HCI researchers concerned about sustainability can, and should, go beyond being 'about' being green" [54]. For example, "issues around busyness and having time to reflect on one's values [81] may be as important for a sustainable HCI to address as issues directly around consumption" [54]. Bringing a social justice orientation to sustainable interaction design is one way to push research further in this kind of holistic direction because it explicitly directs attention to the ways that sustainability is inextricably tied up in, rather than isolated from, the politics of class, race, labor, economy, and geography. In working towards *just* sustainabilities [2], our attention is drawn to the systemic and relational rather than to the individual; we are asked to explicitly grapple with the ways that a project of sustainable design might lead to the entrenchment or creation of socioeconomic disparities; we are provoked to take a political and ethical stance that centers not just on being "green," but on being more broadly equitable.

In responding to calls for more systemic research, a social justice orientation also helps to foreground new concerns about how to account for, and address, entrenched differences and inequities as part of a sustainable HCI agenda. In particular, it reminds us to ask who is (and is not) served by design, and suggests that sustainable HCI should be targeted not just at those who might afford (monetarily or temporally) to spend a weekend installing personal solar panels, to reflect on (and alter) consumptive practices, or to optimize energy usage patterns in alignment with a distributed solar or wind-powered electric grid. From a social justice orientation, sustainability is never about one person's resource consumption, but is always rooted in a multiplicity of stakeholders, power relations, and the already-existing unevenness of social life. The strategies for social justice oriented interaction design described in the latter half of this paper provide concrete tools for

recognizing and responding to the linkages between the social challenge of sustainability and the persistence of inequities across social strata.

ICTD: From Technical to Political

Researchers in ICTD – information and communication technologies and development – study, design, and build computing technologies to bolster socioeconomic and international development efforts [116]. For example, past projects have focused on designing and deploying novel technology configurations in order to improve Internet access in rural and unconnected spaces [117, 98, 107, 97]. ICTD projects are often framed as explicit attempts to leverage the capacity of technology for social change in the service of addressing what have been identified as underlying social challenges such as widespread poverty or a lack of access to education. This area of work thus takes on deeply entrenched social issues, including educational, economic, developmental, and health disparities.

However, as researchers have found, projects focused on predominately *technical* approaches to social change often fail because they lack social and political sustainability [see 117, 62, 57, 5, 121, 67]. An inattention to the specificities of local politics and the power relations among the multiple stakeholders involved in a development project often contributes to the increased marginalization of oppressed groups while further entrenching existing power structures [see 45, 82, 89]. Recent critiques have argued for the need to re-politicize design and engineering practices, especially in the ways that designers and researchers identify and frame problems [82], to rethink assumptions about what makes 'poverty' a thing to fix [66, 45], and to be wary of perpetuating already-uneven economic relations by transforming individuals into consumers [66, 41]. Moreover, as Escobar [40] has argued, including more people and stakeholders alone is not enough. Thus, open questions in ICTD center not only on participant inclusivity, but also on how to reconfigure the constellations of power in which an outsider, a designer or developer, is often in the primary position of control.

Such critiques underscore a need for ICTD designers to engage more explicitly with precisely the key concerns of social justice – the multiplicity of stakeholders, power relations, and the unevenness of social and political systems. In this direction, some recent ICTD projects have embodied an explicit focus on social change through resisting forms of oppression, such as sexism, classism, racism, and ableism (*e.g.*, [102, 112, 70]). Irani *et al.* affirm that "all design research and practice is culturally located and power laden" and argue for a more explicitly political engagement with social issues like poverty because apolitical stances often occlude "the sometimes highly political causes of poverty" [66]. In their analysis, they draw from Ferguson, an anthropologist, to highlight how these development projects, by aligning with commercial interests, frequently ignore the political and historical

trajectories that produce and perpetuate the conditions of poverty [45; see also 82, 89]. Likewise, Warschauer & Ames call for a more integrative approach among policymakers, practitioners, scholars, and designers to develop "an understanding of how to organize large-scale social improvement efforts involving technology" [121]. Similarly, Burrell and Toyama also call for interdisciplinary approaches and highlight the value and importance of reflexivity in the research and design process [18].

Taking a social justice orientation to design practice is one way to respond to these calls. The practical strategies and personal commitments which we outline in the final two sections can help designers to explicitly foreground the politics surrounding oppression and draw attention to the ways that some interventions may reproduce inequalities. Even if imperfect in execution, working towards the horizon of a more socially just society, means making the effortful attempt to reconfigure power structures within the design process. Although some recent work has focused on oppression, a more holistic engagement with social justice – including issues concerning the multiplicity of stakeholders, designer's engagement, and the economic, historical, and political framings of social issues – would help us better attend to and engage with the multiple politics of design. A shift from the technical to political highlights the ways that designers may unknowingly reduce or ignore the complex social situations for smaller, more tractable problems. Bringing a social justice orientation to ICTD work preferences attention to the complex economic, historical, and political trajectories of social issues and can help to raise related concerns that might otherwise remain invisible as well as to guide analysis through the development of more holistic framings of sociotechnical situations.

Community Informatics: From Charity to Social Change
A third cluster of work that aims to intervene in social challenges is design and research within the space of community informatics. In seeking to find practical ways to address a variety of complex social issues – such as homelessness, health disparity, street harassment, and domestic abuse – HCI researchers have often partnered with local nonprofit organizations [*e.g.*, 122, 78, 79, 28, 35]. Although non-profit and "charitable" organizations exist along a broad spectrum, many of these organizations aim to address social issues predominately through a charity model [53, 101]. Charity, as an orientation toward people and social challenges, focuses on providing aid to individuals identified as disadvantaged and can be problematic and limiting for the following reasons: it provides insufficient or inappropriate resources to address issues [53, 77, 101]; it defunds public sector services [101]; it is undemocratic in how to address issues [50]; and finally, such approaches tend to ignore the structural inequalities that produce the need for charity [50, 73]. Although there are many complex interrelations among non-profits, organizations commonly referred to as "charities," and other institutions in histories of social change, it is important to recognize the ways in which taking up charity as an orientation towards change can be problematic. Amplifying the current practices of charity-based nonprofits' may not be the most effective way to address all social issues.

Recently, there have been calls for rethinking traditional approaches to community informatics. Working in the area of civic engagement, Korn and Voida call for design strategies that create friction and generate contestation in order to "provoke people not only to take up more active roles in their communities but to question conventional norms and values about what it means to be a citizen as well" [71]. Studying housing justice activists, Asad & Le Dantec examine "how different kinds of civic engagement exist on digital platforms in spaces outside formal political and institutional channels" and as a means to resist institutional authority [7]. DiSalvo calls more generally for politically–oriented "adversarial design" to provoke discussion, debate, and contestation [30]. Such scholarship raises questions about how designers' participation and engagement with social issues are situated within larger cultural, political, social, and economic systems.

When forming partnerships – with "charities" or otherwise – designers and researchers must take care with respect to the types of practices and services they wish to amplify and how they engage and participate with the multiple stakeholders. Designers must attend to and reflect on how the practices they seek to augment are situated within a cultural, historical, and political milieu when working towards equity. Any work between vulnerable, marginalized populations and organizations seeking to help these populations raises questions about the politics of engagement and participation given the often-dramatic differences in social standing, power, and circumstance of these multiple participants.

A social justice orientation highlights how charity alone as a method to address large systemic social issues will likely not bring out the desired social change. Social justice draws to the fore concerns of equity, participation, engagement, and the larger consequences of practices, partnerships, and politics within design practices. It places these concerns at the heart, rather than the periphery, of design inquiry. It can help us more fully attend to and reflexively engage with the politics of collectively envisioning different futures and the pragmatic social changes necessary to achieve them.

DESIGN STRATEGIES FOR SOCIAL JUSTICE
In this section, we show how a social justice orientation can be enacted within a design practice. As we have seen thus far, social justice is a multi-faceted, complicated concept. There are many concerns associated with achieving social justice, and multiple paths along which one might work towards achieving its goals. In this section, we return to the work of Lötter [85], as inspiration for a set of concrete design strategies which respond to six different dimensions of social justice. These exemplar strategies, among many possible, help ground a social justice orientation within

design practice. These strategies include designing for *transformation, recognition, reciprocity, enablement, distribution, and accountability.* For each of these, we draw on our own and others' work to identify concrete examples of how to practice design with a social justice orientation.

Designing for Transformation

In our first design strategy, we highlight the fluidity and malleability of social justice as a concept. Social justice is not (and should not be) a stable concept – it is always evolving with more robust and inclusive understandings of the issues, problematics, concerns, causes, and catalysts of social justice. Per Lötter, "conceptions of justice change over time [to reflect new social norms] and therefore just ways and means must be found to comply with a new, improved conception of [social] justice" [85]. Thus, a social justice oriented understanding of *transformation* suggests the usefulness of a long-term approach to designing for the evolving, emergent social, economic, and political relations that produce inequalities. Designing for such transformation draws our temporal orientation from immediate innovation towards a focus on the role that structural inequalities (*e.g.*, government institutions, the cultural milieu, access to education) may play in perpetuating social injustices.

Large social issues, such as food insecurity, sustainability, racism, sexism, and ableism develop from multifaceted interactions among individuals, communities, governments, organizations, and so on. Recent work within HCI, notably sustainable HCI, recognizes individual actions have a limited effect on large-scale social challenges, and has called for further understanding of problems beyond the individual [20, 36, 37, 72]. Such work asks designers to consider the "political and cultural context" [37] so they might develop effective solutions to large-scale societal problems. This broadening of the design space promotes designers to move beyond individual action and toward designing for collective action, by focusing on regional and national contexts [47, 52]; activist groups [52, 6, 33, 99], and/or nonprofit organizations [78, 122].

Designing for Recognition

The second design strategy for social justice that we explore here is rooted in the notion of *recognition*. From a social justice orientation, recognition focuses on identifying unjust practices, policies, laws, and other phenomena, as well as identifying those people who are most negatively impacted by such phenomenon [85].

Within design practice, recognition can happen when designers articulate and frame a problem and its collection of key issues [31, 108]. Problems do *not* exist *a priori*. Designers formulate "problems" when they define and articulate the collection of issues on which to focus their attention. The act of defining a problem simultaneously creates the acceptable parameters by which they can be addressed (*i.e.*, solutions that contend with the problem) by narrowing the focus of the potential design solutions. Therefore, problems are always developed understandings of situations that focus and delimit the design space [74, 31, 108].

One example of recognition can be found in the work of Dimond *et al.* in analyzing the impact of storytelling via Hollaback's web and mobile platforms. Hollaback, a social movement organization whose mission is to end street harassment, created these platforms to enable people to share stories and reflect on experiences of street harassment, an under-recognized problem which they define as "harassment in public spaces directed towards traditionally marginalized groups such as women, nonwhites, and LGBTQ (Lesbian, Gay, Bi, Transgender, and Queer) people" [28]. Hollaback helps individuals share stories and identify this phenomenon as harassment. Per the authors, street harassment is "not necessarily problematized or even recognized as a phenomenon" and, thus, a central goal of their design project involved "diagnosing street harassment as a problem" [28]. In this case, designing for recognition occurs at two levels. First, in framing a design or problem space, the creators of Hollaback explicitly aimed to address a social challenge that had previously been under-recognized, but that was a manifestation of unjust social relations and affected specific marginalized groups. Second, in creating a storytelling platform, the Hollaback team designed a system that did not attempt to simplistically or single-handedly 'solve' or eliminate street harassment, but rather to facilitate individuals' sharing of personal stories in such a way as to encourage others' identification of harassment, oppression, and marginalization as a legitimate social problem to be addressed via multiple avenues.

As a mode of reworking "participation" in the design process, recognition also encourages us to create open, transparent, and inclusive decision-making processes about which issues are deemed important when understanding a problem [42]. In practice, this encourages not only partnering with collaborators for extended periods to understand their challenges, resources, and goals, but also incorporating participatory methods within design practice.

In sum, designing for recognition means focusing on identifying unjust practices, laws, and policies and other phenomena. This identification can happen in a variety of ways including shedding light on the severity of an experience, situating historical injustices, legitimizing issues and concerns, translating experiences to enroll allies, and so on. Recognizing a phenomenon as a problem is the first step necessary to work towards social change.

Designing for Reciprocity

Building on recognition, after an injustice has been identified, *reciprocity* describes the relationship between those who are owed justice and what needs to occur for the obligations of justice to be fulfilled [85]. Often this requires an implicit or explicit agreement of what is considered to be the fair expectations or obligations between those who are owed justice and interpersonal, social, and institutional

relations [85]. Thus, reciprocity as a design strategy focuses on engendering more fully equitable relationships.

Developing equitable relationships can be difficult given that people often do not agree on whether restitution is owed or how to address past injustices. Reciprocity encourages a focus on how to engender different forms of participation that could lead to more equitable engagements. There are many different types of relationships and stakeholders that could be envisioned in the design process from allies to oppressors. Reciprocity can be framed as mutually beneficial social arrangements and therefore, it encourages developing opportunities for change within uneven relations. One strategy for designing for reciprocity is to design platforms with the potential to change those inequitable relations. For example, in Dombrowski's design research on food justice, she worked alongside urban farmers who wanted to develop an alternative online marketplace with the goal of changing their uneven economic and social relations with their more affluent local businesses [34]. The urban farmers expressed concerns about feeling marginalized within the local food scene and desires to be seen as a resource to their affluent counterparts in more mutually beneficial ways. To develop new avenues for selling food to upscale restaurants ideologically invested in the local food movement, they proposed designs that would enable them to market and sell their produce to high-end consumers for a fair price, foster their reputation, and communicate with consumers. For these urban farmers, more equitable social and economic relations were the goal, not the starting point, of the envisioned design intervention. Here, reciprocity focused on developing relationships and devising methods to engender more equitable arrangements between farmers and their more prosperous counterparts, opening the possibility for more equitable reciprocity.

In sum, designing for reciprocity focuses on relationships and the ways in which those relationships maybe need to change to become more equitable for all stakeholders. While the presented design example highlighted a mutually beneficial system, fostering more equitable relationships may not always be seen as mutually beneficial, but can also encourage spaces for open contestation and conflict.

Designing for Enablement
The fourth design strategy for social justice focuses on *enablement*, facilitating and developing opportunities for people to fulfill their potential and to develop their own capacity. Oppression occurs when people are unduly constrained by "institutions, laws, policies, and human behavior" [85] or unable to engage in their own development [124]. Thus, enablement has a multi-level focus on developing opportunities for change, including scaffolding individual behavior change as well as the practices and polices related to fostering structural change. Enablement as an ideal focuses on creating possibilities for change and for decisions about what to change.

For design, enablement might be understood in terms of fostering human capacity or helping people take advantage of opportunities by creating platforms for participation and self-determination. For example, work by Parker *et al.*, focused on building community capacity around healthy eating by developing "community mosaic," a public infrastructure for sharing ideas among community members, promoting reflection, and encouraging behavior change [99]. This work exemplifies enablement because it focuses on creating a platform to help "lay people encourage others in their neighborhood to eat healthfully by sharing how they have been able to make healthy eating decisions themselves—information that is, hopefully, locally and culturally relevant to other community members" [99]. Individuals' stories were shared on a large public display in a local community center. Importantly, rather than standardizing behavior, the system fostered individuals' own reflection and decision making by prompting sharing aimed at inspiring others to eat healthy. Enablement centers not just on facilitating action, but also on deciding *which* actions to enable. In this example, decision-making occurred through formative focus groups in which the local community decided to emphasize, "how the community is succeeding at eating healthfully (instead of focusing on challenges)" [99]. Beyond nutrition and health, enablement is applicable within other domains in which individuals develop their own capacity such as education, healthcare, sustainability, and employment.

Designing for Distribution
Another design strategy for social justice is the equitable *distribution* of the benefits and burdens of social systems [85]. Benefits include wealth, goods, opportunities, and access to resources; burdens, on the other hand, include undesirable work, taxes, lack of adequate income, and environmental pollution.

With respect to designing interaction and sociotechnical systems, there are several strategies for fostering just distributions. First, one can examine areas focusing on a type of inequality. For example, Dombrowski *et al*'s work [35], focused on food insecurity, a lack of equitable access to healthy food [118]. In their work, they co-designed a collaborative location based information system with local nonprofit organizations seeking to better distribute food resources to their local community [35]. In this example, the design of the information system attempts to reimagine how a physical good – food, in this case – and information can be reconfigured across a network of nonprofit organizations and stakeholders to promote additional access and resource use. Their design envisions more equitable arrangements of resources by expanding the possibility of who can access and make use of those resources. Equitable distribution refers not only to physical goods, but to informational resources, access, and opportunities. Beyond this example, design has examined more equitable redistributions of resources, such as clean water [16], educational opportunities [106], economic opportunities

[27], and issues pertaining to information access and use [95, 17, 93]. Even further, equitable distribution can also entail how to use information and the ability to recognize what kinds of information are need to address a problem or need [90, 13]. Thus, distribution as a concept does not only refer to physical goods, but also immaterial resources such as power, knowledge, privilege.

There are limits to understanding material redistribution as a mechanism of social justice; better distributions of resources will not produce justice if they are neither sustainable nor made through equitable decision making processes. Therefore, beyond more equitable resource allocation, a more holistic definition of distributive justice encapsulates not only material resources, but also redistribution of the production mechanisms for technology and information. Within HCI, we see this type of distributional justice ethic reified through methods that broaden the scope of participation in the design process (*e.g.*, participatory design; action research; cooperative design) by aligning with typically marginalized populations (*e.g*., [78]). By incorporating people who are typically excluded from the design process, designers may render visible alternative design spaces consistent with collaborators' particular cultural practices and preferences [44] and also engender designs that fight oppression and persistent marginalization and promote social change.

Designing for Accountability
Our final design strategy for social justice focuses on *accountability*, which includes holding responsible those who foster or unduly benefit from the oppression of others and identifying and assigning appropriate sanctions, penalties, or even punishments [85]. While determining causes and responsibility for injustice is an important step for social change, assigning sanctions when a sense of social justice has been violated can be difficult – if not impossible – for those in relatively low-positions of social standing and power. Therefore, one strategy for designing for accountability is developing coalitions and "alliances built on common cause … as a way to sustain political and ethical action" [64].

For example, Amazon Mechanical Turk (AMT) workers, or online crowd workers, "felt their work was regularly rejected unfairly or arbitrarily" and desired more fair compensation [64]. To address these concerns, Irani and Silberman designed and developed Turkopticon, which enables crowd workers to share and aggregate reviews of their employers, where previously only the employers could review employees. Doing so develops the potential for new forms of accountability by rendering interactions between workers and employers visible to other workers. In the case of Turkopticon, designing for accountability is not about requiring people to act in a specific way, but rather providing mechanisms for sharing and aggregating previously unseen knowledge among a previously marginalized group to help them make more informed

decisions about which jobs to accept and destabilize the employer-dominated power structure.

Lastly, we would like to highlight Suchman's work on located accountability, where she advocates for a perspective on design and design practice to engender how "our vision of the world is a vision from somewhere … which makes us personally responsible for it" [113; see also 55]. Such a view of design and accountability helps designers understand how accountability can play a role in the relations of design, production, and use of technological systems. This could help designers to hold themselves accountable to other stakeholders who may be impacted by their design decisions, ranging from the inclusion criteria for direct stakeholders, to contemplating the types of materials used to produce the final design.

DISCUSSION
In this paper, we have outlined a social justice orientation to interaction design. The six pragmatic design strategies just presented create tractable ways to engage with social issues; however, as we stated earlier, in developing a social justice *orientation*, we have refrained from prescribing specific actions or stepwise methods. Thus, the presented design strategies should be understood as a preliminary and necessarily incomplete set of pragmatic approaches rooted in a theoretical and multi-dimensional analysis of social justice. We view social justice as a horizon to work towards. No developed solution will be perfect given the tradeoffs and conflicts among stakeholders that necessarily occur in design. Rather, designers should find ways to ground themselves within these imperfectly resolvable social, political, and economic situations and to focus on a process with a set of guiding goals that allow one to improvise as new situations and specific challenges arise. In this final section, we reflexively consider the ways that the six pragmatic strategies connect with a more pervasive and fundamental set of guiding personal commitments within a design practice. These three key commitments include *a commitment to conflict, a commitment to reflexivity, and a commitment to personal ethics and politics*.

Three Key Commitments in the Design Process

A Commitment to Conflict
Taken for granted ways of doing design often suppress, smooth over, or simply fail to surface conflicts. In many cases, conflict can seem to be a hindrance to design. For example, as Irani found in her study of hackathons, potential participants who were perceived by other designer-attendees as too "political" were often excluded from project and social groups – either explicitly or implicitly. The need to keep the project moving forward on a short timeline meant that anything other than depoliticized "feedback" was seen as disruptive and problematic for the success of the design project [63]. By contrast, a social justice orientation to design aligns with HCI scholarship that calls for favoring "polyvocality, diversity, and multiple perspectives" within the design process [38]. Prior work on

polyvocality within HCI states that "decision-making [in the design process] involves more than having a voice; it means having a say" [15]. However, when embracing a diversity of perspectives, experiences, opinions, and goals conflict is likely to occur. There are multiple points where vigorous disagreement can occur within the design process, including attending who is allowed to speak, who controls the agenda and scope of the design process, problem framing, and determining how to address an issue.

In the design process, partnering with those who have experiences with and/or work to end oppression (*e.g.,* based on class, race, gender, ability, sexual or gender orientation) is a good starting point for understanding their particular experiences. Such work involves different types of stakeholders with different values, agendas, politics, ideals, and experiences that are productive in identifying "important information for analyzing our shared world" [42]. However, this means that problems do not have clear answers, because understanding a situation and coming to consensus becomes quite complicated given all of the experiences and external factors that influence a person's subjectivity during decision-making processes, including which problems are even worth addressing.

Earlier we discussed, in *designing for recognition*, that designers have to make explicit effort to legitimatize and render visible people's detrimental experiences with social issues. To complicate matters further, power (*i.e.*, social standing, influence, etc.) also impacts how articulations of social and technical problems are received. As Harding, a feminist science studies scholar, points out, "Marginalized groups have interests in asking questions [about power, oppression, and inequality], and dominant groups have interests in not hearing them" [56]. Marginalized voices can be silenced through deliberate coercive actions or by a distinct lack of opportunity to speak or to be heard. Therefore, conflict in discussions − either anticipated or direct − should be understood not as a problem, but as a healthy sign that the project is tackling questions worth discussing. By anticipated conflict, we refer to the ways in which others may anticipate or imagine other's reactions to discussions and decisions. By direct conflict, we refer to the open contestation that can occur during discussions of problems or proposed interventions. Arguments about healthy conflict align well with prior scholarship on conflict, politics, and deliberation within HCI and beyond [30, 83, 91]. Conflict is likely to occur when *designing for accountability* given that this dimension demands an acknowledgement of past injustices − something that is difficult for many people to do and is not often a part of everyday social interactions. Making a commitment to conflict means that the designer must take on the effortful task of helping to facilitate what may sometimes be uncomfortable conversations. Aligning with those who are oppressed and marginalized is one way to work against a cycle of oppression and representational inequity, as is recognizing our own privilege, constraints, and limits of our

embodied knowledge within the design process and decision making.

A Commitment to Reflexivity
Attending to polyvocality in the design process includes acknowledging the designer's positionality, values, and politics. A long-standing debate amongst the HCI Values in Design community has focused on examining whose values should drive the design process and how those multiple, and sometimes contradicting and competing, opinions should influence the design process and how we understand technology [3, 79, 4, 46, 49]. While it would be problematic not to focus on users and acknowledge their values, experiences, and practices in the design process (which is the very definition of user-centered design), it is equally problematic to presume that designers' merely serve as amplifiers of their users' values. The relationship between the design process and different stakeholders' (*e.g.,* designers, researchers, community partners) positionality, values, and politics is far more complicated. Much of the existing work within Values in Design and HCI tends to downplay the role of the designer's values and their own subjective experience, which likely stems from designer's desires to be seen as more objective and neutral, and therefore more scientific [114]. It may also stem from wanting to "give voice" to the marginalized. However, taking a social justice approach involves active reflection on how designers' own beliefs and values influence design processes and outcomes, and how their "vision of the world is a vision from somewhere" [114; see also 55].

Works within HCI that raise concerns about subjectivity and reflexivity (*e.g.,* reflective HCI [111, 84, 1], critical HCI [11, 10], activist HCI [61, 19, 65], third-paradigm HCI [58]) have identified similar issues and often advocate that that designers and researchers should turn an analytical gaze to their own practices. Such works suggest that scholars should critically reflect on the practices that their work seeks to amplify, and the ways in which those practices are situated within a larger cultural and political milieu. Similarly, when *designing for enablement* and *distribution*, we must attend to not only *what* is enabled or distributed, but also *how* the design process unfolds and the designer's position and role within those processes. To engage issues of researcher and designer politics and their visions 'from somewhere,' Light calls for designers to "engage in researcher reflexivity; challenge the hegemonic dominance, legitimacy and appropriateness of positivist epistemologies; theorize from the margins; and problematize gender" [83]. Harrison *et al.*, likewise suggest that the "phenomenological situatedness of users, designers, and researchers" is central to design research, and argue that researchers, "should articulate to the extent possible the intellectual and political commitments that the authors bring to a particular project" [58]. There are limits to reflexivity [105] and prior work has called for recognizing the flexibility and relationally in our ability to know [79], particularly in moments when others, including our

partners, question our positions, assumptions, and difference. However, this does not obviate a responsibility to attempt to integrate within the design process an acknowledgement of, and critical reflection on, one's own positionality. A social justice orientation is rooted in similar concerns, and provides a complementary set of strategies for researchers to bring political issues of class, race, gender, status, and sexual orientation to their projects' fore.

A Commitment to Ethics and Politics

A social justice perspective acknowledges the oppression a marginalized person has undergone, and that the oppression likely originates from or is influenced by external factors beyond the individual's control. It suggests asking, "why is this person experiencing this need in the first place?" Within *designing for transformation*, we discussed how social justice as a term is not stable and continually evolves more robust and inclusive understandings of concerns related to social justice. In doing so, a social justice-orientation widens the arena in terms of how context and situations are understood in relation to how oppression is experienced. Therefore, calls to action include contending with the individual's immediate needs, and attempts to address the larger context and imbalanced power relations that produce the potential for and actual oppression.

Importantly, we want to acknowledge the different political philosophies a social justice orientation can include. While the term social justice is often associated with inclinations that are considered liberal or "left leaning", social justice as a philosophy can include other political stances, values, and starting points. For example, in her work on science and technology policy, Cozzens demonstrates how different political philosophies (*e.g.,* libertarianism; utilitarianism; contractarianism; and communitarianism) all engage with the concept of justice differently; resulting in varied understandings of state obligations [24]. Therefore, social justice does not necessarily equate to "left leaning" politics and can be inclusive of a wider political spectrum.

However, what is crucial for embodying a social justice orientation is an explicit engagement with and commitment to *a* personal political and ethical stance. Attending to our own situated politics as designers and researchers provokes us to ask tough moral questions about our involvement in design and research projects. This attention is raised explicitly within strategies for *designing for reciprocity* as it focuses on fostering equitable relationships, including those between designers and their partners. By examining how personal politics inform our projects, we can produce more robust theoretical contributions focused on the capacity and constraints of interventions addressing social inequality.

Open Questions and Challenges

Before concluding, we want to acknowledge that significant pragmatic challenges confront a social justice-oriented design practice as researchers must contend with bureaucratic realities: securing funding, caring for students,

obtaining ethics approval, working within institutional commitments, maintaining multiple community partnerships, and so on. These pragmatic challenges are a nontrivial component of conducting engaged work, and require attention within the realm of the mundane details of our disciplinary reward structures and institutional norms.

Another important open question centers on the politics of being an ally for an issue one does not directly experience. Political ecology research examining philanthropic nonprofit and non-governmental organizations states that "new configurations of networked relationship [can] obfuscate the workings of neoliberal imperialism; thus reinforcing global power hierarchies in which hegemonic powers are depicted as humanitarian 'saviours' whilst enforcing 'accumulation by dispossession' in the periphery" [26 citing 59]. That is, some efforts may appear philanthropic in nature, but upon further examination may actually reinforce oppression or the status quo, as many of these activities may be in "opposition to [local] agency and progressive social movements" [26]. Further explorations of the ethics and possibility of being a "good" ally for social justice causes within HCI are needed.

CONCLUSION

In summary, we understand social justice to be a fluid, multi-dimensional concept that evolves as we develop more robust and inclusive understandings of the concerns, causes, and catalysts of social change. We have aimed to honor this fluidity by outlining an *orientation* to design rooted in social justice – rather than presenting a specific technique or singular stepwise method. We understand this social justice orientation as comprising a constellation of modes and sensitivities, including a mode of knowing and relating, and sensitivities to inequality and marginalized voices. In outlining a social justice orientation to design, this paper provides several contributions: we described a multi-faceted concept of social justice relevant to interaction design and useful as a means to directly engage with the ethical and moral issues in design practice; we described concrete, pragmatic design strategies that create tractable ways to practice social justice oriented design along six dimensions; and finally, we outlined three key commitments necessary for carrying a social justice orientation through a design and research practice given that social justice as a horizon to work towards; an always ongoing process and practice rather than a clearly defined utopia that offers itself up for idealized achievement.

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