



# Playing with Power Tools: Design Toolkits and the Framing of Equity

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## ABSTRACT

Design toolkits that aim to promote equity offer designers simplified approaches to creating more equitable technology. However, it is important to understand how equity is conceptualized in practice. As a curated collection of methods, toolkits signal how equity is imagined in design. In this paper, we perform a qualitative analysis of 17 design toolkits related to equity. We explore alternative design approaches that address inequity in design. We evaluate whether equity toolkits align with calls for changes to design practice, as well as Nancy Fraser's dimensions of justice. Finally, we find that design toolkits focus on the 'digital divide' rather than redistributing world-building power, and thus continue to keep design power with professional designers. We also find that 'design thinking' continues to influence design toolkits. Furthermore, the simplicity of toolkits does not engage with the complexities that shape equity in practice. We conclude with suggestions to help researchers and designers rethink design toolkits.

## CCS CONCEPTS

• **Human-centered computing** → **HCI design and evaluation methods; Interaction design process and methods; User centered design; Participatory design.**

## KEYWORDS

design, equity, ethics, justice, activism, tool, toolkits, cards, Inclusive Design, Universal Design, Participatory Design, Value Sensitive Design

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## 1 INTRODUCTION

Inequities in design have been increasingly problematized in recent years. While individuals and groups have advocated for equity within social justice spaces, there is now significant pressure to take issues of equity into account outside of social justice spaces

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[17, 21, 44, 58]. The field of Human-Computer Interaction (HCI) and Computer-Supported Cooperative Work (CSCW) has advocated for change in the design industry to address inequities in the design of products and systems [65, 95, 96]. These imperatives call for the inclusion of diverse communities in the design process and a redistribution of power within the design profession [11]. However, it is unclear how equity is understood by companies and designers, and without investigation into their framing, they may seem to practice equity, but in reality, cause harm [21].

HCI and design scholars have shown that design has a far-reaching impact, shaping not just aesthetics but also the social and political structures of the world [51, 62, 101]. The stakes of design equity therefore go far beyond individual interactions with designs, and it is vital to gain an understanding of how design is approaching issues of equity. To continue advocacy for equity in design, it is important to take stock of how equity is being conceptualized in practice, and whether the conceptualization aligns with the calls to action in the scholarship.

In response to calls for more equitable design, numerous toolkits have been developed to address equity issues in the industry. These toolkits, at the broadest level, seek to provide designers with a set of resources (or "tools") to help them engage in more equitable design practices. However, prior research on toolkits for Artificial Intelligence (AI) and Internet of Things (IoT) technologies has suggested that toolkits fail to address complex social issues such as ethics and equity [20, 120, 184]. Despite this, toolkits serve as a signal of what epistemological framework is being used as 'best practice' for a given problem [129]. Therefore, toolkits are a valuable resource to understand the epistemological framing of equity in design.

In this paper, we explore different approaches to equity promoted in toolkits and use our findings to understand framings of equity in the design field, at large. Specifically, we ask:

*How do design equity toolkits signal what approaches to equity the design community is taking?*

Through a qualitative analysis of 17 toolkits, we explore how the design industry is framing equity, make connections to alternative design practices and propose future steps for equity in design. To situate our work in scholarship around design equity, which points to power dynamics and redistribution of control to marginalized communities, we take inspiration for our definition of design equity from Fraser's [68] and Sen's [154] concepts of justice. Combining Fraser's justice requirements and inclusion of marginalized populations in the design process, we think of design equity as the recognition of oppression from social systems, and designing to address that oppression by recognizing community perspectives and redistributing the power of design to marginalized communities. We take a discussion-heuristics analysis approach to this work, as

little documentation is available regarding the *in vivo* use of these toolkits, focusing instead on the dialectic context that these toolkits signify [12, 119].

This paper contributes to understanding the framing of equity in design through the 'best practices' presented in the toolkits. These insights can be used by future work advocating for change in the industry, as well as to inform scholarship on the state of equity in design. With the increasing number of toolkits in other HCI disciplines, this paper offers an approach to assessing equity toolkits in other spaces such as algorithms and maker-movements [119, 132, 176, 183]. Our analysis reveals two different conceptualizations of equity in design: one that focuses on expanding access to technology and the other that seeks to redistribute the power to shape the world. Our findings indicate that toolkits for design equity primarily focus on the former, failing to distribute power to marginalized groups, or meet Fraser's requirements for justice [68]. Despite critiques of currently dominant design approaches (such as Human Centred Design and Design Thinking), toolkits continue to rely on these approaches. We also problematize the use of toolkits for complex social issues, as they aim to simplify complex issues by reducing friction from users and communities. Furthermore, toolkits target designers as their primary users, revealing that toolkits are still focusing on empowering designers rather than the communities oppressed by equity issues. Our findings provide ways forward for HCI researchers and designers to identify gaps in how equity is addressed, and frame future approaches to advocate for equity in design.

## 2 RELATED WORK

### 2.1 Defining Equity

The etymology of the word "equity" can be traced back to the Latin word *aequus* which roughly translates to the contemporary concepts of justice, equality, and fairness [168]. Despite these roots, the meaning of the term has varied throughout history, as different geographic and temporal contexts have provided different interpretations of what equity represents [167].

Aristotle [15] discussed the concept of equity in relation to legal justice, arguing that the legal system will always be inadequate in addressing justice because it viewed every situation as equal. In contrast, equity is necessarily indeterminate and "represents the exercise of making ... tailor made, particularized judgments" based on the unique situation at hand [15]. During the Civil Rights Movement in the United States during the 1960s, the term "social equity" gained popularity [86] and there was an increased demand for the "government to be an instrument of change to correct power imbalances between the advantaged and disadvantaged" [86]. Unlike the Aristotelian concept of equity which was notably distinct from the realm of legal justice and a result of a process of deliberation, the term "equity" increasingly became understood as something that can be quantified and achieved through institutions.

The problem with this contemporary understanding of equity is that it is not actually conducive to the ultimate goal of justice that is implied. Justice itself has multiple dimensions and there are different ways of conceptualizing it. Sen [154] differentiates between two conceptualizations of justice: *niti* and *nyaya*. While *niti* focuses on correct procedures and institutions, *nyaya* is "realized

justice", that focuses on a just social world that emerges from these procedures and institutions. *Nyaya* is a more inclusive concept of justice that takes into account the diverse needs of individuals and communities and can support a plurality of justice principles. Prior HCI literature has engaged with these conceptualizations emphasizing that designers need to be mindful about how communities and individuals actually experience justice, i.e. *nyaya* [138, 146].

Fraser, in an alternate conception of justice that engages with both *niti* and *nyaya*, states that for justice to exist, three distinct dimensions must all be sufficiently addressed [68]: recognition, redistribution, and representation. Recognition addresses cultural injustice and is focused on producing "a difference-friendly world, where assimilation to majority or dominant cultural norms is no longer the price of equal respect" [70]. Redistribution is centred around socio-economic concerns and addresses injustice through the material reallocation of resources. Lastly, representation is when "important aspects of justice result from collective decision making by all those involved" and is the closest to the Aristotelian concept of equity where decisions regarding equity and justice are to be debated upon by all those affected. Prior HCI literature has engaged with this multidimensional nature of justice to understand how it connects with broader societal structures [163].

In this paper we look at Fraser's tripartite model of justice: however, while equity has multiple definitions, in the context of HCI and design, it is perhaps more vital to understand equity as a process leading to *nyaya*, rather than an outcome in itself. Our analysis will not focus on whether toolkits adhere to a specific definition of equity, but rather what the use of the term "equity" in these toolkits is intended to suggest.

### 2.2 Design and Equity

HCI and design research has argued that current technology designs tend to focus on solutions for majority populations, thus excluding those on the margins, resulting in racist [17, 60, 63, 143], colonial [55, 102, 118], hetero-patriarchal designs [11, 44, 122]. The field of design itself remains dominated by majority populations namely white, cis-male and affluent individuals. To illustrate this, design scholars have borrowed the concept of 'Matrix of Domination' from Patricia Hill-Collins, an interlocking system of racism, sexism, homophobia and colonialism [40, 44]. Designers from marginalized communities are thus under-represented, resulting in continued oppression of marginalized communities [61, 65]. In response, HCI research and design fields are increasingly engaging with concepts of justice as a multifaceted social issue that impacts interactions between people, technology and society [5, 42, 51, 65, 87, 103, 114, 149].

With such contrasting visions of design — on the one hand, as a source of inequity and on the other, as a solution to it — design traditions that aim to address these problems and better position design as a force for good have emerged. These design traditions inspire the toolkits analyzed herein. We will begin with a discussion of the most prevalent design approaches, Human Centred Design and Design Thinking, followed by an exploration of alternatives that engage with issues of equity in design.

**2.2.1 Human Centred Design & Design Thinking.** Design as a discipline saw a transformation into a rational and objective activity

during two distinct periods: the modern movement of design in the 1920s and design methods movement of the 1960s [47]. Human-centered design (HCD), influenced by industrial design, and design thinking, brought cognitive and social sciences into design [6]. Signalling a shift away from product focused design, HCD sought to incorporate the human as well as their environment into technology design. Thus, rather than asking humans to adapt to new technology, HCD sought to design technology to fit the human [54]. Since its emergence in the late 1990s, HCD has become widely known and is used as a catch-all term for a range of design approaches [112] that focus on creating usable and desirable products and services.

While design thinking, as a broad term, originated in attempts to understand design work, it became intrinsically tied to how design can respond to organizational or business challenges [109]. Original design thinking highlighted the situatedness of the individual designer and the thought processes they employed in their work [6]. However, as used by capitalist and managerial organizations, more formalized and less complex versions of design thinking became dominant, focusing on interpreting problems through deterministic problem-solving methods [111]. Heller & Vienne [96] discusses how HCD, as a process-oriented and institutionalized approach to design, creates inequity. Design became something done *for others*, isolating it within institutions and making designers part of an elite creative class [109]. The emphasis towards a more scientific approach framed the designer as an all-knowing objective authority [95].

Perhaps the most well-known formalization of design thinking comes from IDEO, a prominent design firm. IDEO packaged design thinking into a marketable format which has been distributed widely [116]. IDEO identifies their Design Thinking as a selection of methods from HCD that are the most accessible and replicable [32]. IDEO's Design Thinking is now used across industries as a strategy for generating creative solutions for 'difficult' problems beyond just product design. In tandem, the Stanford d.School created a visualization of design thinking which has eclipsed other representations. Due to their ubiquity, for the remainder of this paper, DT will refer to the version of design thinking from IDEO and the Stanford d.School.

While popular, DT and HCD have faced criticism. The first step in IDEO's process, *empathize*, has attracted particular critique as it encourages designers to make assumptions about the people their designs impact and negates the need for consultations with marginalized communities themselves. Sara Ahmed [2, 3] argues that empathy further alienates the subject and that the empathizer simply inscribes their own emotions onto the subject. Bennett and Rosner [19] show that practices of empathy ignore the unique histories and politics of marginalized groups. Along with the negation of historical and political context, empathy also runs the risk of misunderstanding actual use context, as the designer cannot truly know how the user will engage with the technology [164]. Serpa and Silva [155] take this issue further, proclaiming empathy "an anti-dialogical practice that reifies subjects in design processes focused on developing capitalist commodities." In design empathy, the person being empathized 'with' is not given a voice, allowing the designer to hold power over their outcomes. Despite these critiques, Design Thinking is still commonly used by businesses,

governments, educational institutions, and social organizations [32].

**2.2.2 Alternative Design Approaches.** Design approaches that contrast with HCD and DT have attempted to provide more equitable alternatives. A non-exhaustive list of these approaches that focus on inequities embodied in design practice include Participatory Design (PD), Value Sensitive Design (VSD), Inclusive Design (ID), Universal Design (UD), Ecological Design (ED), Socially Responsible Design (SRD), and Feminist Design. These approaches are interconnected and share methods as well as inspiration, but focus on different aspects of design and human values. We outline some of these approaches in this section.

Both Universal Design and Inclusive Design critique the reliance on 'average' in design. Both approaches share provenience with HCD, but critically they question who is considered the 'human' in human centred design. Design often addresses those who are considered part of the norm; instead, these approaches attend to the 'margins', designing for those who are frequently left out of design considerations [35, 107]. Both approaches evolved from efforts to design with disabled users in mind, a consequence of the disability rights movements in the 70s, but have since expanded to cover multiply marginalized groups [147]. Universal Design's goal is for designs to be "usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" [160, 161]. While Inclusive Design initially focused on disabled and aging populations, it has now expanded to "focus ... on inclusivity at a social level, and achieving that through a range of products and services that together accommodate the whole population without stigma." [36]. It thus focuses on iteratively including as many as reasonably possible in constantly evolving designs [147].

In contrast to the rational problem-solving models, Participatory Design (PD) is centered around a reflective practice paradigm [9]. It originally emerged in the 1970s from Scandinavian democratic labor politics around technology deskilling labor [57, 84]. In its early form, it focused on "giving workers better tools," by involving workers in the design process [24, 152]. Early PD projects drew on workers rights, anti-capitalist ideals, feminism, and democracy [108, 170]. At its outset, HCD was inspired by PD, with both recognizing people and their needs as a key element of good design [6]. The aim of involving users in the design process is to make design more democratic and aligned with users needs through fairer decision making processes [9, 152]. Although the origins of PD were in homogeneous communities [135], designers have adapted PD for different social, cultural, and political contexts [8]. These include using it as a method of engagement for a wide range of marginalized groups such as different age groups [45, 134], racial groups [92, 162], disability groups [98, 127], and professional groups [37, 38].

Developed in the early 1990s, Value Sensitive Design (VSD) and Socially Responsible Design (SRD) consider values beyond participation and democracy in the PD process. VSD recognizes that technology is the result of human decisions and, therefore, a reflection of human values [73, 74]. Key to VSD is an analysis of how human values result in a particular design and critiquing the values integrated by the designer. This theoretically-grounded approach explicitly focuses on the human values of "well-being, dignity and justice" [73]. SRD acknowledges the limitations designers face in

implementing change, but asserts that designers have more agency than they assume [145]. Designers are encouraged to recognize the power they possess. Both VSD and SRD do not actively advocate for values based on community input, but rather more esoteric 'human values' or 'social responsibility' [73], and call for interdisciplinary collaboration to achieve these standards.

While the alternative approaches shared so far have primarily focused on the design of technologies for users and communities, Ecological Design and Feminist Design focus on interrogating how existing systems shape design and its broader impacts. Previously mentioned design approaches often use ecological and feminist design as a framing or methodology in combination with the procedural elements of ID, UD, PD and VSD. Ecological Design, first introduced in the 1990s [174], focuses on environmental issues and the unpredictability of natural systems. It challenges the impression of preeminence in design and rejects design solutions which attempt to master complex issues [174]. Particularly due to the emphasis on locality and sustainability, Ecological Design offers framings that augment alternative design traditions such as Sustainable HCI (SHCI), Participatory Design (PD) and Value Sensitive Design (VSD) [22].

Feminist Design, in its contemporary form, has been around since the early 1900s [66] and studied how design decisions operate within and perpetuate patriarchal society [39, 179]. It has since been expanded by HCI scholars to challenge social systems which inform design through tenets of feminist theory such as positionality, reflexivity, and situatedness [11, 65, 125]. Feminist Design emphasizes the situated nature of technology use by bringing the user and their knowledge into the design process [164]. It thus challenges not only design, but also the social systems which inform them. Feminist Design principles have been integrated into alternative design approaches, including PD, UD, ID, and VSD [64, 88, 99].

Each of these alternative design traditions offer important advances in the design equity space. Importantly, they strive to include a diverse set of marginalized voices in the design process. UD/ID work to expand the definition of who can use a design and who should be designed for. PD expands who should participate in the design process and incorporates values of democracy and participation. VSD incorporates a wider range of human values and morals into the design process. Ecological Design and Feminist Design challenge the process of design itself to account for social and environmental complexities. While this list is by no means exhaustive, together they paint a comprehensive understanding of equity in design [142]. Next, we will discuss the theoretical framings of equity which inform the design space.

### 2.3 Forms of Equity in HCI and Design

As concerns for emerging inequities in design surface, there is a division among scholars in how they approach these issues. A large body of work focuses on the digital divide which van Dijk [175] defines as "a division between people who have access to and use of digital media and those who do not". The other major focus on design equity is that of world building, which questions who has the power to design and shape the world [62]. We term these as the access approach and the world building approach, respectively.

Considering our definition of equity, which focuses on redistribution of power, representation of oppressed groups, and recognition of social oppression, the access approach seeks to redistribute power in the form of technology and its use, in an attempt to bridge digital divides. Narratives around the digital divide focus on a 'deficit model' that highlights marginalized groups' lack of access to technology and suggests that providing access will solve many social issues [31, 153]. The narrative of universal access follows a script of designing for *othered* subjects based on solutions from a privileged few, implying a deficit of not only access, but of "imagination and agency" [55].

In addition to separating the digital world into 'haves and have-nots,' the deficit model implies that simply providing access - or bridging the digital divide - will result in equitable digital spaces. However, attempts to include marginalized populations in the digital market have, in many cases, widened the power gap by making them dependent on technology and consequently the technology owners [102]. Access addresses redistributive justice, but not in a consistent or meaningful way. Access focused equity lends itself to the 'business case' of inclusion, i.e., by creating more equitable designs, the owner of the design will profit. For example, arguments for accessible designs for users with disabilities often argue that not including these users limits the potential customer base, reducing marginalized users to a source of income for financial stakeholders [89, 150]. Similarly, some companies will engage in ethics washing, where they appear to prioritize ethics primarily to improve their own image, and those already benefiting from oppressive structures profit further from supposedly equitable projects [21]. Attempts at equity using the access approach therefore fail to be just on the basis of redistribution, as power is not shared, and on the basis of representation, as marginalized communities are not present in decision-making processes [68].

In contrast, the world building approach around design equity advocates for localized design efforts and the expansion of who is considered a designer. Costanza-Chock [44] questions the institutionalization of design, where "who gets (paid) to design" turns out to be "disproportionately ... people who occupy highly privileged locations within the matrix of domination". This uneven distribution of power is particularly problematic in design, as design at its core is an ontological practice and a process of shaping the world [180]. Dourish and Mainwaring [55] show how privileged knowledge is treated as universal, and thus lead to the design of a world based on those with the most privilege. Escobar [62] further problematizes the way that design currently functions as a colonial project, standardizing progress to promote a homogeneous future. He draws on international social movements such as the Zapatistas [128] and calls for "a world where many worlds fit", where local agents are able to take up their own design projects and create the local world that befits their needs. In the Crip Technoscience Manifesto, Hamraie and Fritsch [90] call for recognition of disabled creators as designers and agents of world making. Bardzell [12], in describing qualities of a feminist HCI, asks for participation to shift from a "god's-eye view on subjects" to knowledge co-construction. These calls to action have in common the imperative to have marginalized groups *doing design* and engaging in ontological practices. Far beyond access, this approach to design equity seeks to distribute the power of world building. These aligns

with Sen’s approach to justice that highlights that the focus should be less on the institutions or rules (i.e. *niti*), but rather the world that actually emerges (i.e. *nyaya*). This is built on a practical approach that goes beyond traditional socio-economic constructs and instead values what is truly important to human lives, emphasizing a sensitivity to human diversity.

Returning to Fraser’s requirements for justice, the need for world building power is further strengthened (2008). Strohmayer et. al (2019) engages HCI directly with Fraser’s multidimensional conceptualization of justice, emphasizing a need for localized solutions and participation of impacted stakeholders. The means to design must be redistributed, marginalized groups and related oppressions faced must be recognized, and marginalized designers must be able to represent their community through design. Incorporating the three dimensions, we will use the following definition of equity in design:

Design Equity recognizes the oppression that emerges from social systems, and designs to address oppression by recognizing marginalized communities’ perspectives and redistributing the power to design via partnerships, resource sharing, and relinquishing privileged power.

In this paper we will explore the different approaches that the design industry is taking to issues of equity, using toolkits as signifiers. We will compare toolkits’ equity framing to the definition we have presented, using Fraser’s three dimensions of justice as reference. As described next, toolkits act not only as artifacts but also as epistemological statements of best practice for a given issue. Given this, the present study will explore how the design industry is framing equity, using toolkits as epistemological signals.

## 2.4 Defining a Toolkit

Toolkits have taken a multitude of forms throughout history, from first-aid kits to social justice kits. Far more than collections of items, toolkits formalize approaches to the world in a streamlined, scripted fashion [129]. As described by Mattern [129], toolkits by their very nature describe “best practices” for a specialized situation. The collection of methods and instruments in a toolkit inform the correct way to approach a situation according to its creators. As a result, toolkits serve as a way for their creators to efficiently distribute knowledge from a position of authority. In Mattern’s definition, toolkits are a script, and are used to minimize “waste and frustration” in a given process.

Similarly, in their guide to creating a toolkit, the American Library Association defines a toolkit as “a collection of authoritative and adaptable resources ... to learn about an issue and identify approaches for addressing them.” [1] Toolkits can help translate theory into practice, and typically target one issue or one audience. Like Mattern discusses [129], toolkits here offer a scripted approach to a situation. Elcessor’s [58] definition of toolkits is more general, describing toolkits as “a modular grouping of different perspectives, methods, and interrogatories that may be picked up and deployed individually or in concert”. This definition lacks the element of scriptedness, and allows the user to approach components of the kit individually or together. Within HCI, toolkits for computing are described as platforms that make problems or topics in the

field more approachable [119]. HCI toolkits are generally rooted in programming and either enable development of new interfaces or facilitate iterative HCI research [176]. Through their role in streamlining HCI research, these toolkits also shape the knowledge that results from it.

Common between these definitions, toolkits offer an epistemological statement about a problem or situation, thereby defining it. In Mattern’s [129] and the American Library Association’s [1] process-oriented definitions, toolkits suggest a scripted, streamlined approach as the correct way to proceed. Elcessor’s [58] lens still offers an epistemological perspective in that the creator has placed together “perspectives, methods, and interrogatories” that they see as relevant to a topic. Meissner & Strohmayer [132] show that toolkits can constrain and define the way users conceptualize a topic by presenting a scripted epistemology. This risks restricting the perspective the user may have in approaching a problem. Toolkits then are important “rhetorical and aesthetic” artifacts, which then define the problems they address. With such complex problems as equity, which already resists definition, toolkits can signal what epistemological approach designers are taking to equity in their work [129].

As a set of instructions, however, toolkits embody the concept of *niti* in justice, focusing on procedures and institutions [154]. However, by neglecting *nyaya*, toolkits risk reducing equity to a hegemonic practice, recreating existing oppression. Gray and Chivukula [82] raise concerns that the reductive approach to design ethics, and a singular approach such as a guide or a toolkit will always be insufficient due to the complexity of the designer’s “organization, individual practices and ethical frameworks”. In evaluating toolkits, Ledo et al. [119] note that they cannot be relevant to complex and changing contexts. Within the context of equity, we anticipate these problems to translate or even grow.

In the face of such complex problems as equity in design, however, it is understandable why a toolkit as a script of best practice is appealing to the design space [52]. Already, critics of toolkits in other HCI spaces, such as AI Ethics, and the makers’ movement, have raised concerns that toolkits lack scaffolding to give necessary background for users to practice the principles effectively [104, 120, 183]. Further, toolkits cannot anticipate the complex contexts which they may be used in, and therefore lose functionality in practice [132].

## 3 METHODS: TOOLKIT COLLECTION AND INITIAL ASSESSMENT

To illuminate the conceptualization of equity in design, we performed a thematic analysis of 17 toolkits. We argue that, as rhetorical artifacts of ‘best practice’, the content and provenance of these toolkits show what the design industry considers the best approaches to achieving equitable design processes. At this time, we chose to focus on the content and aesthetics of the toolkits, not the actual use of these toolkits. Ledo et. al [119] describe four potential evaluation methods for toolkits: demonstration, usage, technical evaluation and heuristic evaluation. Our evaluation method specifically uses discussion-style heuristics and employs Fraser’s three dimensions of justice as heuristic standards [68].

While the contextual use of these toolkits will be vital for a full understanding of the impact of equity toolkits on the design industry, the toolkits themselves as discursive artifacts offer a rich picture of how equitable design is imagined. Bardzell & Bardzell [12] highlight the value of dialectic knowledge in HCI as a means to situate research in the social systems in which it occurs. Therefore, our work focuses on the systems which inform the approaches to equity in design and sets up dialectic contexts for future work.

### 3.1 Collecting toolkits

For this research project, toolkits related to equity and inclusion were gathered via word of mouth, internet web searches, and keyword searches through academic journals (e.g. design + tool/toolkit/cards + equity/ethics/justice/inclusive/diversity). The researchers also posted messages in various digital spaces, such as design focused Slack channels and Discord Channels, asking members what design equity toolkits they had encountered. From the initial 34 toolkits gathered, 17 were shortlisted for analysis using the following inclusion criteria:

- (1) **It must be a “toolkit” in that it has multiple tools or methods to approach a given situation, as well as an explicit suggestion of how to use those tools or methods.** This excluded some of our initial samples which functioned more like glossaries or compendiums of other resources, such as the *Introduction to Equity-Centred Design* [77] as these lacked explicit guidelines on how to use those methods beyond what was already included in the method itself. This also excluded individual tools such as *Cards for Humanity* [100], which is a standalone tool rather than a toolkit.
- (2) **It must mention design as a key focus of the toolkit.** The majority of toolkits had ‘design’ in their title, indicating its importance. Others such as the *Envisioning Cards* state in their description that they address design. Toolkits such as *Racial DeckEquity* [151] were excluded by this criteria as they focus on organizational equity not necessarily through design.
- (3) **It must address one or more of:** Equity, Inclusion, Diversity, Ethics, Accessibility.

### 3.2 Analysis

Once we had shortlisted the final list of 17 toolkits (Appendix C.), we then classified them based on their:

- (1) **Source:** who made and distributed the toolkit. We chose to divide the sources of these toolkits into academic (made and sponsored by an academic institution), industry (made by a company or by designers in the industry) and non-profit (made by a non-profit organization). There is a focus here on funding and sponsorship, for example the Liberatory Design Toolkit had a few academic designers on the team, but because the project as a whole is sponsored by the National Equity Project [4], we classified it as non-profit.
- (2) **Design traditions:** what design tradition (DT, PD, VSD, ID etc.) the toolkit mentions as influential, or most closely mirrors.
- (3) **Cost:** what resources does it take to acquire the toolkit.

- (4) **Audience:** who is meant to use the toolkit, who is being addressed. We identified designers, community members and academics as the three main audiences. We determined the toolkit audience through the language used in the toolkits, often directly addressing a ‘designer’ or a ‘researcher’.
- (5) **Community addressed:** which marginalized communities/identities are emphasized (if any).
- (6) **Format.**

The final toolkit classification can be found in Appendix B.

8 out of these 17 toolkits had been cited by scholarly work relevant to the HCI community. The *Envisioning Cards* [75] and the *UnBias Fairness Toolkit* [117] have been used as research tools in the context of HCI research [72, 106, 141, 186]. For example, the *Envisioning Cards* were used as a tool in co-design with homeless youth [186] and to generate user profiles to explore persuasion [106], while the *UnBias* project looked to define fairness among multiple stakeholder groups [115]. *Racism Untaught* and *Social Designer’s Guide to Power Literacy* were introduced as new concepts in design related publications [81, 133], while the *Cambridge Inclusive Design Toolkit* was previewed [81]. The *Microsoft Inclusive Design Toolkit* [156] was used as a starting point to design a digital design equity game [67], and as a point of reference to critique guides for designing with blind users [18]. The *Social Designer’s Guide to Power Literacy* [80] is used to explain the different facets of power at play in HCD [14]. The *Racism Untaught Toolkit* [137, 169], *Liberatory Design Toolkit* [4, 144, 173], and *Ethical Explorer Pack* [121, 130] were cited in more design focused and pedagogical spaces to explain design choices such as how designers evaluated liberatory design work in those contexts.

**3.2.1 Thematic Analysis.** After identifying the attributes of the toolkits, two individual coders performed a deductive and inductive thematic analysis. The team initially used a deductive approach to create a list of themes to classify the toolkits. The two coders independently created themes, drawing upon prior literature. The toolkits were then analyzed and the themes were iterated and refined using an inductive approach. The list of themes were compared and a consensus was reached on a set of 14 themes and their meanings (Appendix A). These themes were grouped by *Process*, *Requirements of the User*, *User Type*, and *Motivations*. None of the themes were mutually exclusive. The agreed-upon definitions of themes can be found in Appendix B.

After listing and defining the final set of themes, the researchers independently coded the toolkits. The first iteration of coding had an agreement score of 85.29%. The researchers subsequently identified and discussed disagreements until consensus was reached. These conversations were documented as they played an important role in the data analysis process, and captured the challenges of analyzing complex toolkits.

The theme which required the most debate was “User - Community”, which referred to the community directly using and benefiting from a toolkit, rather than the designers. While many toolkits referenced consulting with or bringing in community, the primary user is often still the designer who is bringing community in to participate in the design process, rather than to direct or have ownership of the process.

In contrast, the theme "User - Designers" signified when the toolkit is meant to be used by designers in the institutional sense, who design as their career. They additionally were assumed to not be members of the communities which the design would address. The themes "User - Designers" and "User - Community" were not mutually exclusive as some toolkits were tagged as being intended for both designers and communities. This was often the consequence of toolkits having a large sets of tools that catered to a diverse set of users.

The theme "Requirement - Community", which captured if a designer needed to build relationships with the target community prior to using the toolkit was also discussed. The research team debated whether the theme indicated that community *could* be involved in the toolkit process versus if the community *must* be involved according to the toolkit. For toolkits that had a myriad of tools that could be used in different ways, some but not all tools required participation of community. An example of this can be found in the Inclusive Design Guide [172], which has a myriad of tools to be used in any order or combination. Some but not all tools required participation of community, and therefore this toolkit was up for debate. Based on the discussion, it was determined that the theme "Requirement - Community" should signal that a toolkit *must* have community involvement, as much of the literature indicates that community involvement is mandatory for equitable design outcomes [11, 43, 157].

The theme "Requirement - Commitment", which meant that the user of the toolkit was instructed to make a long-term commitment (of time or resources), underwent discussion as well. As the projects discussed in the toolkits often seemed like they would take a significant amount of time and effort (i.e., community design), our team initially tagged nearly all the toolkits as "Requirement - Commitment". We also negotiated how to define "long-term" and our discussions were indicative of the larger tensions in design on what counts as a sustainable approach. However, similar to the theme "Requirement -Community", after discussions, we tagged only toolkits which explicitly called for the user to have sustained commitment to the design project and provided clear steps regarding the investments of time and effort.

Finally, the theme "Process - Empathy" required discussion. This theme captured if empathy was a step in the toolkit process. Empathy is a key step in the DT process as it is the way HCD designers centre the user - potential feelings and experiences of users are integral to the design process [32]. Therefore, toolkits aligned with DT were assumed to use empathy as well. However, we found that toolkits did not always follow the conventional steps of the DT process, or used different terms. Consequently, toolkits were tagged with this theme only if they explicitly called for empathy by using phrases such as "put yourself in their shoes" or "imagine if you were X". This distinguished the theme of "Design Thinking" from "Process - Empathy" as the toolkit had to explicitly use empathy in the use process. Toolkits which did not have imagining another's experience as a step in the toolkit process were therefore not tagged with "Process - Empathy".

On the whole, the process of qualitative coding and the related discussions established that design toolkits have embedded assumptions that shape their approach to equity. The final themes can be found in Appendix B.

## 4 RESULTS

### 4.1 Justice as Motivation

In our interpretation of design equity, justice is at the heart of how equitable design may be worked towards. Out of the 17 toolkits analyzed in this project, 10 were determined to be primarily motivated by the goal of justice. However, most of the toolkits do not clearly define justice and often avoid the explicit use of the term itself. Most of the toolkits do not explicitly discuss their intentions or ultimate goals and, even those that do will mention goals of "equity," "diversity," and "inclusivity" without providing further rationale on why. This non-defined approach to justice is particularly significant in HCI where, as Stohmayer et al. [163] discuss, "institutional ideas of justice are [often] incongruent with those affected". Without a shared understanding of what these toolkits are intended to do true justice will not be achieved.

Potentially as a result of the lack of shared definition for justice, the toolkits each approached Frasers' dimensions of justice differently and incompletely. While none of the toolkits addressed the first dimension - redistribution - directly via redistribution of economic resources, toolkits which focused on the access approach to equity implied that redistributing access to technology is a form of justice. For example, the Cambridge Inclusive Design toolkit aims to create technologies that "are accessible to, and usable by, as many people as reasonably possible" [177]. Of the toolkits that had justice as a motivation, six presented increasing the potential base of users as a goal. As with other work that turns to technology access as a solution for economic disparities, this assumption misses the complex socio-economical systems at play that result in oppressions and ends up benefiting those already in power [83]. The toolkits do not address the larger systemic barriers prevalent in the field of design itself, nor do they challenge the systems which concentrate economic power with the privileged.

Only three of the justice motivated toolkits addressed recognition. These toolkits involved users in the actual formulation of the design process or used design processes from marginalized communities. For example, the Building Utopia Deck [93] uses Afrofuturism to frame design exercises. Since most toolkits rely on the individual designer to direct the design process, the culture of the designer will inevitably hold the most power. Therefore, misrecognition is inevitable. Making the decision that design is the best approach is already "eras[ing] the insights and agency of those who are discounted because they are not designers" [17]. While the toolkits call for an expansion of users, those users must still engage in design as structured by dominant paradigms. Fraser states that justice necessitates the "dismantling [of] institutionalized obstacles that prevent some people from participating on par with others" [68].

Nine of the ten justice motivated toolkits attended to representation. There has been a recent push for representing diverse interests in the design process and including community perspectives [26, 45, 99, 148]. This push for inclusion of diverse perspectives in clear in the toolkits, many called to "includ[e] more minority groups and underrepresented populations in the process" [185] and ensure "multiple stakeholders were involved in some way during the design process" [80]. This is in line with PD, which has been calling for community representation in design for decades [165].

However, not all participation is created equal, and inclusion of marginalized groups in the design process does create equitable design inherently. For instance, since the toolkits largely do not address recognition, the cultural space participants enter into will be controlled by the designers which will diminish their power in the process. Only three of the toolkits in our study involved community as equal partners in the design process: Equity Centred Community Design [34], Community Led Co-Design Toolkit [7], Inclusive Design Guide [172]. These three toolkits more accurately reflect a key aspect of equity - that it “refuses simple formulations” [187]. Co-design and the involvement of community users, while not a perfect solution, brings us closer to justice by embracing the inherent messiness of equity work. We will now elaborate on the balance of power between community users and designers within the toolkits.

## 4.2 Designers vs. Community

In our analysis, we observed that all toolkits targeted designers as their users. A common critique of design has been the distance between designers and communities [44, 95], which leads to power being isolated with the designer. This further reinforces power gaps as designers now possess both the tools and the perceived expertise [142]. Many of the toolkits (10/17) call for community members to participate in the design process. However, without attending to the unequal power dynamics in these participatory spaces, cannot be considered representation. Although these toolkits include members of the community in the design process, the community often plays the role of a data source rather than collaborator. There is also no scope to assess if this leads to *nyaya*, or a just experience for the communities.

While many of the toolkits referenced engaging with community, almost all of them were written to have the designer be the facilitator of the discussion, and community members solely as participants or research subjects. For example, the Microsoft Inclusive Design Toolkit [156] encourages the user to learn from diversity by hearing the perspectives of people who are usually marginalized in the design process. However, the designer is the person who completes the Inclusive Design activities. Similarly, the Equity Centered Community Design Toolkit [34] has the toolkit user gather a “diverse set of co-creators” to participate in most of the activities throughout the toolkit. However, in this case the “Equity Designer” is presumed to be a member of the community who is charged with facilitating the process.

The Inclusive Design Guide [172] and the Community-Led Co-Design Kit [7] were the only toolkits with tools aimed at both designers and community. Both the toolkits were comparatively larger in size which may contribute to their expanded audience. Their case studies also indicate use by both community and designers. For example, the Community-Led Co-Design Toolkit is set up so that either a community can complete the co-design process and be completely self-facilitated, or a designer facilitates the sessions. For the latter, participation is done in a way closer to the suggestions from design justice literature [44], where designers worked alongside various stakeholders to ensure that the resultant design artifacts can be owned by the community long-term.

**4.2.1 Target Audience.** The privileging of designers is further shown by the toolkits directly addressing designers. As design itself has become a somewhat ubiquitous field, the designers mentioned in the toolkits largely did not belong to a specific category. All the toolkits, with the exception of the Equity Centered Community Design and the Building Utopia Deck [34, 93] addressed designers as the users of the toolkit. The Power Literacy Toolkit [80] names “social design, participatory design, action research, civic design, social innovation, design for the public sector, urban design or something else” directly in their introduction materials, and the Ethical Explorers’ Field Guide [130] goes even broader with “explorers—whether product managers, designers, engineers, or founders—are driven by the idea that it’s possible to innovate while also designing tech more thoughtfully to avoid potential downsides.”

In contrast, the Equity Centered Community Design Toolkit [34] addresses community leaders who may be “a teacher, nurse, politician, graphic designer etc.” and the Building Utopia Deck [93] addresses “anyone who wanted to envision...center[ing] the voices of the most marginalized”. The Community-Led Co-Design Toolkit [7] addresses multiple groups such as designers working with communities, researchers, and leaders within the communities themselves. Interestingly, the Equity Centered Community Design Toolkit and the Building Utopia Deck take vastly different approaches to design equity. The former follows DT closely, and focuses on imparting the dominant design paradigm to community members for their own use. The latter engages in a gamified speculative design process rooted in Afrofuturism. This dichotomy is a good example of the need for diverse standpoints in design equity approaches, since what felt necessary for one community group’s toolkit is significantly different than the other.

Addressing the toolkit to designers is the most explicit way that the design toolkits reconstitute the loci of power with the designer rather than communities. The content of the toolkits also suggested that the toolkit designers attempted to streamline the toolkits for designers.

## 4.3 Consistency with Design Thinking

Many of the toolkits closely resemble the five steps of Design Thinking (Figure 4) as consolidated by IDEO [32] (Figure 1). Designers and academics have critiqued the simplicity of this approach, saying that it “waters down a complex process” and sacrifices depth in favor of marketability [116]. While design thinking originally claimed to approach nebulous ‘wicked problems’, it has since evolved to a more product or solution oriented discipline [109]. By using DT (as presented by IDEO) as the core of their process, the toolkits risk treating inequity as a simple problem to be solved, disregarding the complexities underlying social issues.

Furthermore, the toolkits additionally showed signs of attempting to cater towards designers, who may be unfamiliar with issues of equity by aligning the toolkit with the familiar system of DT. By using DT steps such as *empathize*, *define*, *ideate*, *prototype* and *test*, designers using the toolkits will instinctively know what each step is about. The use of knowledge specific to designers and the simplicity of the toolkits show that the toolkits are meant to make design equity as simple as possible for designers. While simplicity is often an inherent property of toolkits, here it serves designers more

than community members. Community members often possess the background knowledge missing from toolkits that is important for the success of design projects. Community members may not be familiar with the design methods that are familiar to designers, which can reinforce the power dynamic between designers and the community as 'experts' in the design space [140]. Additionally, this approach requires designers to obtain background information from the community, potentially leading to extractive design practices. Nevertheless, there are exceptions, such as the Inclusive Design Guide [172], which includes a section titled "Insights" that explains the background philosophy behind their approach to Inclusive Design. This allows community members without a background of design to gain knowledge from within the toolkit and practice design themselves.

We found 11/17 of the toolkits were modeled closely to DT. Some toolkits explicitly called for the user to engage with DT or matched 1-1 the steps in DT within their own process. Not only did the toolkits use the same words to describe their stages of design, the color schemes to match those steps are exactly mirrored. For example, Liberatory Design [4] (Figure 2) matched almost exactly the steps in DT, with the exception of Imagine & Inquire standing in for where Ideate would usually be, and the addition of two steps: "Notice" and "Reflect" [4]. The Liberatory Design Toolkit in their original 2017 toolkit version also mirrored the hexagon diagram that is used by the Stanford d.School to represent DT. In 2021, the design team behind Liberatory Design re-released the toolkit with a modified aesthetic, maintaining the color scheme but distancing from the d.School hexagon style (Figure 3).

Other toolkits mirrored DT but used alternate words for the steps of the Design Thinking Process. In Figure 4 we show the alignments between DT and the toolkits which closely mirrored it.

The continued focus on DT which is evident in these 11 toolkits signals that the dominant force in design equity practices is still a design process that is critiqued because it creates inequities. The most common additional step that design equity toolkits add on is inviting diverse participants - according to these toolkits, the missing component from DT is the lack of community presence in the design process. However participation in and of itself does not mean that a process is equitable [28]. Including more people in the design process does not address the critiques of DT that challenge its deterministic and scientific approach. Furthermore, this means that the design process is not truly democratic [152]. As a result, using DT as the backbone of toolkits causes them to fail the requirements of representation and recognition. Showing only IDEO's design process obscures the diverse array of approaches used by designers [110]. This makes it seem that there is only one way to think in design, which is procedural and solution oriented.

However, despite the consistent focus on DT, the toolkits also pulled on other design traditions such as Participatory Design, Inclusive Design, and VSD, sometimes in conjunction with DT.

#### 4.4 Other Design Traditions

The toolkits drew from multiple design traditions, which showed the salience of each of the traditions to the way design is currently conceptualizing equity. Out of the alternative design traditions, the toolkits drew on three: Value Sensitive Design, Inclusive Design,

and Participatory Design. The design traditions were not mutually exclusive, and many toolkits drew from multiple design traditions.

Some toolkits, such as the Microsoft Inclusive Design Toolkit [156] and the Cambridge Inclusive Design Toolkit [177], explicitly have a focus on Inclusive Design. In addition, several toolkits included key principles of Inclusive Design, such as the Community-Led Co-Design Toolkit [7] which discussed designing for 'edge cases' and outliers. 6/17 of the toolkits showed principles of Inclusive Design. Due to Inclusive Design's origins in disability activism, the toolkits which emerge from Inclusive Design have a focus on disabled users, which can be seen in the Microsoft Inclusive Design Toolkit [156] and Cambridge Inclusive Design Toolkit [177] explicitly. In the Inclusive Design Guide [172], this focus becomes clear based on the materials made available, which include references on "Disability as Mismatch" and "Integrate Accessibility From the Start". While accessibility and ensuring disabled users can use technology is important, critique has emerged around the focus on accessibility over highlighting technologies created by the disabled community themselves [89]. Further, as the toolkits focus on disability, it is important to also consider intersectional issues as well as other groups, which the toolkits may not align as well with.

In total, 7/17 of the toolkits highlighted Participatory Design (PD). PD required access to the community as they would need community members to participate in the toolkit process. These toolkits called for community involvement in the design process, such as the Liberatory Design Toolkit [4] which has a card to "Seek Liberatory Collaboration" and the Equity Centered Community Design kit which calls for "Inviting Diverse Co-Creators". In addition, the toolkits that focused on co-design, such as the Community-Led Co-Design Toolkit [7] and the Model of Care for Co-Design Toolkit [131] also had Participatory Design at their core. The PD toolkits also tended to have a more general target community focus than Inclusive Design. These toolkits championed the involvement of community members in the design process as a way to work towards equitable designs. As we showed in our results around designers as users versus communities as users, these toolkits still mainly had designers as the agents in the toolkit usage, and were in charge of the design process. This is contrary to scholarship in PD which challenges power imbalances and highlights expertise of community members [92].

The toolkits which drew on VSD traditions spoke to human values as part of the design process. For example, the Liberatory Design Toolkit [4] has "Focus on Human Values" as one of their first mindsets. The Envisioning Cards came directly from the VSD lab at the University of Washington, and have Value criterion cards as a key card category [75]. The Ethics for Designers Kit [79] asks the designer to map out their 'moral values' as a step in the toolkit, and the Ethical Explorer Pack [130] names "supporting human values" as one of its guiding principles. A total of 5/17 of the toolkits seemed to draw from VSD. These toolkits had a broad audience focus, and were more likely to come from academic creators than other design traditions were. This may be due to the origin of VSD in academic contexts [113]. The power exchange between academics and designers has been critiqued as keeping power among elite classes. This problematizes the academic roots of VSD, and raise the question of whose values are being considered in VSD [158].

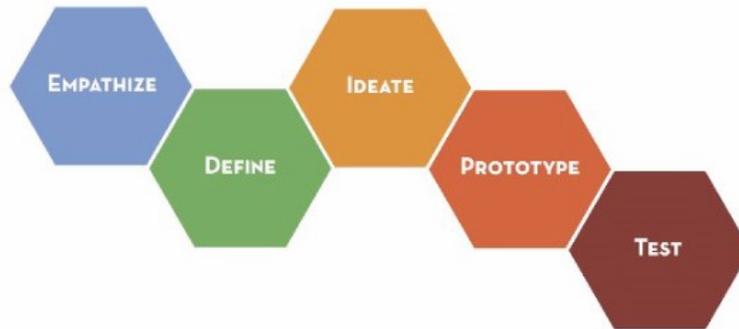


Figure 1: Design Thinking Steps [53]

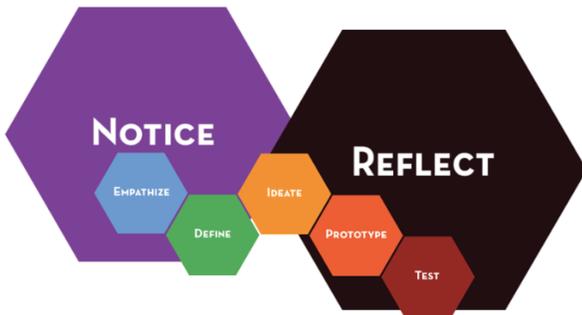


Figure 2: Liberatory Design 2017 [4]

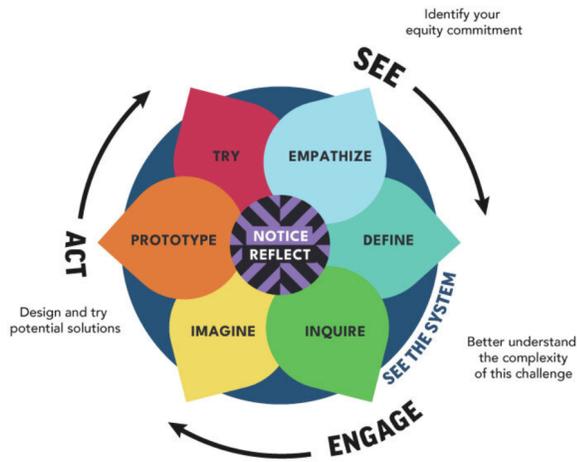


Figure 3: Liberatory Design 2021 [4]

### 4.5 Focus on Empathy

While empathy in and of itself is not bad, it can lead to false assumptions and further alienate marginalized communities [2]. The majority of toolkits (10/17) mentioned using empathy as part of the toolkit process (Process - Empathy); that is, these toolkits ask

the toolkit user to imagine a target audience’s lived experiences as their own to improve the design. For example, the Liberatory Design Toolkit [4] has a step in the toolkit process “to understand the experiences, emotions, and motivations of the person or community” and the Microsoft Inclusive Design Toolkit [156] calls for “empathetic problem solving and research”.

In contrast, fewer (7/17) mentioned empathy as a motivation to use the toolkit (Motivation - Empathy). These toolkits prompted the user to think of the lived experiences of others as a reason to use the toolkit. The Microsoft Inclusive Design Toolkit discusses the different barriers users may experience, and uses this as a reason to practice Inclusive Design, making empathy a motivator to use this toolkit.

Interestingly, not all toolkits that were consistent with DT used Process - Empathy, despite empathy being a core component of DT. Model of Care for Co-Design [131] does not call for empathy, only to “build the conditions” for co-creation with the target audience; despite following closely the steps of DT, it appears the toolkit designer explicitly replaced empathy with actual community input. Other toolkits which had community involvement as a requirement of the toolkit also had empathy as a process. While this may seem contradictory, this group of toolkits use community members as a data source, but ultimately leave interpretive work – “empathy” – to those designated as designers. As the three dimensions of justice are intrinsically tied with one another within Fraser’s framework, addressing one usually requires addressing the others simultaneously. If empathy is used in lieu of representation, recognition is unlikely to exist as the perspectives represented in design will have gone through the filter of the designer’s perspective. Empathy is portrayed as a way to consolidate the process of incorporating other perspectives in design, but this comes at the risk of disempowering those the toolkits are aiming to help.

### 4.6 Little Mention of Requirements

We found that toolkits rarely mentioned requirements for their use. Toolkits can make design equity more appealing by streamlining the process, offering the ‘best practice’ path in a simplified way [129]. For design to be equitable, however, there must be long-term accountability from the designer and commitment to sharing power with the community [44]. Otherwise, there is a risk of ‘parachuting’

Toolkit Name	Empathize	Define	Ideate	Prototype	Test	Additional Steps
Liberatory Design	Empathize	Define	Imagine & Inquire	Prototype	Try	Notice & Reflect
Cambridge Inclusive Design Toolkit	Observe Users Stakeholder Maps	Needs List Personas	Stimulate Ideas Develop Concepts	Create Prototypes	Evaluate	Manage
Equity Centered Community Design	Building Humility & Empathy	Defining & Assessing Community Needs	Ideating Approaches	Rapid Prototyping	Testing & Learning	Inviting Diverse Co-Creators
Microsoft Inclusive Design	Get Oriented	Frame	Ideate		Iterate	Optimize
Beyond Sticky Notes	Build the Conditions	Immerse & Align	Discover	Design	Test & Refine	Implement & Learn
Mapping Power	Discover	Synthesize	Ideate	Develop	Try & Evaluate	
Ethics for Designers	Envisioning	Framing		Realizing	Validating	Moral Advocacy, Creativity & Sensitivity
Racism Untaught	Context	Define	Ideate	Prototype	Test	

Figure 4: Alignment Between Toolkits and Design Thinking

into communities with design, dropping in without proper context and leaving without a plan for sustained support. To assess whether the toolkits analyzed in this study prioritized community relationships (Requirement - Community) and long-term commitment (Requirement - Commitment), we looked for the toolkits to explicitly call for these requirements of design equity. Only 5/17 toolkits mentioned Requirement - Community despite many of the toolkits advocating for hearing community voices. For example, in the Microsoft Inclusive Design Toolkit [156], one of the included activities asks the user to “interview people who have a variety of abilities” and the Inclusive Co-Design Toolkit [185] encourages “putting vulnerable populations at the centre of design processes.” Without an explicit clarification on if users of the toolkit would need ties to the community in advance of using the toolkit – or what that “community” actually entails – bringing in community is entirely left to the toolkit user’s own discretion. Put another way, the designer is given authority to define the “who” in justice. While the lack of formal requirements could hypothetically allow for more just outcomes, many of the toolkits, seem to target designers without much existing knowledge of equity work, making it unlikely that they will be able to properly understand how to approach community-based work effectively. When engaging with community, attending to the complexities of relationships within the design space must be done with care [25]. Without this, the design process is set up to fail on the dimensions of both representation and recognition. Overtly, the exclusion of community is a failure of representation. However, recognition is also unfulfilled as community participants may not engage confidently and comfortably in the design process without the foundational work needed to make them feel truly recognized [135].

Additionally, only 4/17 toolkits mentioned Requirement - Commitment. An example of a toolkit calling for commitment is the Community-Led Co-Design Toolkit [7], that critiques researchers and designers who drop into communities and leave once they feel they have finished and have no accountability to their project. The Liberatory Design Toolkit [4] encourages long-term engagement with the toolkit itself by recommending using the toolkit consistently and repeatedly through the design process, or “a little, every day”. Toolkits that we determined did not require long-term

commitment were those that served as a brainstorming tool or a workshop, and therefore could be used for a quick reference but not throughout the designing process. The lack of long-term commitment with the community might hinder designers from assessing the social world that emerges from the use of the design toolkits, and if the communities truly experience nyaya.

#### 4.7 Business Motivator

Simplifying the requirements of design equity may serve to make equity more appealing to designers who could be intimidated by the idea of approaching equity issues, and companies or for-profit designers who worry about the costs of complex processes [52, 120]. To sweeten the deal, some toolkits additionally argue that design equity will also increase profits via the ‘Business Case’.

Despite critiques of using the Business Case to encourage designers to create more equitable design [21, 89], 6/17 of the toolkits still used motivations such as expanding the user base as reasons to use their toolkits. In the Cambridge Inclusive Design Toolkit [177], the kit warns designers against excluding potential clients: “the true costs of bad design ... have the potential to cause irreparable damage to the brand image through customer frustration.” It also cites the rising rate of aging populations with pension money to spend on technology. Similarly, the Microsoft Inclusive Design Toolkit [156] indicates that including disabled people in the design target user-base will make better products for everyone, and will increase the customer base.

Surprisingly, most of the toolkits that made the Business Case (4/6) came from academic sources (sponsored by a university or run within the system of academia). Although academic literature has critiqued the Business Case [44, 89, 105], academic tool sources are still using it, perhaps based on assumptions that this is the best way to convince industry members to engage with equity. In contrast, of the toolkits sponsored by industry rather than an academic institution, only the Microsoft Inclusive Design Toolkit [156], which was heavily influenced by the Inclusive Design Guide, (an academic source) [172] and the Ethical Explorer Pack [130] used the business motive. This suggests there may be some disconnect between what academics believe motivates industry members to

practice equitable design versus what those working in industry actually prioritize.

As discussed, justice was the most common motivator among the toolkits. Of those that did not use justice as a motivator, 4/7 were from academic sources, once again suggesting that academic institutions doubt industry's commitment in the equity space. Ultimately, while this may encourage more widespread usage of these toolkits, motivation by capitalist interests is antithetical to Fraser's [69] conception of justice that emphasizes the importance of redistribution and the alleviation of socio-economic maldistribution.

The Business Case may be used to justify the cost of the design toolkits, some of which could be cost-prohibitive to those who may not have financial resources or access to data to proffer such as email addresses. Those who may not have access to the resources required to get the toolkits are also those more likely to be from the marginalized communities the toolkits are meant to benefit, particularly under the digital divide model. Those who cannot access technology already, cannot get the toolkits.

#### 4.8 Costs

The cost of acquiring the toolkits reveals assumptions about who will be using them: mainly those with financial resources and those who are comfortable with data sharing. Many (11/17) of the toolkits required a purchase or sharing of personal data to obtain. 8/17 toolkits required a purchase, some of which would purchase a physical card deck, book or other media item. A few of these toolkits (Ethical Explorer Pack [130], Field Guide to Power Literacy [80], Design for Belonging [182], and Equity Centered Community Design [34]) had both the option to purchase a physical artifact, and an option to give personal data for a 'free' download. Costs ranged from \$15.00 to \$28.00 (all prices in USD, calculated with exchange rates at the time of research). 7/11 of the toolkits required input of personal data to acquire the toolkit. Toolkits that required sharing of personal data asked for names and email addresses of those wishing to download the toolkit.

Interestingly, toolkits that engaged with the Business Case did not always have a financial requirement for accessing the toolkits. Out of the toolkits that used the Business Case (6/17), only two required a purchase of the toolkit, and one of those two only required a purchase if the user wanted the physical copy of the toolkit (a free download option was available). This dichotomy leaves a question of why there is such a focus on profits within the business case, and whether it is necessary to use as a draw for toolkit users.

In summation, the toolkits analyzed in this study addressed designers as the ones expected to use the toolkits, rather than the communities the toolkits are meant to benefit. The majority of the toolkits were modeled after DT, but also drew on other design traditions such as Inclusive Design, VSD and Participatory Design. Empathy played a large part in the toolkits processes and motivation for designers to use the toolkits. Most of the toolkits did not indicate that they would require the designer to have ties to marginalized communities, or that the designer would need to make a long-term commitment in order to see success with the toolkit. Next, we will discuss the results in relation to our research question: *How do design equity toolkits signal what approaches to equity the design community is taking?*

## 5 DISCUSSION

Recently, there has been a call for HCI researchers and designers to take a critical lens to design and find tools and strategies that allow them to address issues of justice and move towards activist causes. Engaging with a wide range of analytical frameworks and modes of inquiry, these calls to action focus on "agency, identity, empowerment and social justice", and for a plurality of voices from diverse standpoints to hold power in the design space [11]. However, there still exists a gap between HCI research and design practice: prior research has shown how HCI research is often perceived to be too theoretical or abstract to be used by design practitioners. On the other hand, inequities in design can be overwhelmingly complex to face: issues of racism, sexism, colonialism, homophobia, and other oppression resist simple solutions due to their complexities.

The design of toolkits is thus an important space for HCI researchers to directly contribute to, as they offer an epistemological framework to approach these complex issues presented as the best practice and steps presented in a familiar, comfortable way [129]. By creating simple, easy-to-follow steps in a standardized format, toolkits make design equity issues seem manageable. Additionally, for *nyaya* to be realized by communities through design processes, there needs to be *niti* or the procedural elements in place that can guide actions - design toolkits can and do play this role. The epistemological nature of existing toolkits can further help HCI researchers identify how the design industry is currently approaching issues of equity: what aspects of justice are they focusing on, where are the current approaches falling short, and what strategies that HCI researchers can propose for the future?

Fraser's concept of 'affirmative' versus 'transformative' strategies of justice [69] can be used to articulate how HCI research and design approaches should focus on social problems. Affirmative strategies aim to redress inequitable social outcomes of arrangements without disturbing the underlying social structures, while transformative strategies aim to correct unjust outcomes by restructuring underlying systems. This concept relates to debates about affirmative design and critical design [56], wherein the former "reinforces how things are now, it conforms to cultural, social, technical, and economic expectation" while the latter "provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical, or economic values." HCI researchers need to support the design of toolkits that can focus on transformative justice and to do so requires a deep analysis of existing toolkits and proposing alternative approaches.

The discussion outlines how existing toolkits are approaching issues of equity and justice, the continuing reliance on empathy with the loci of power still concentrated in the hands of a few, and how to account for the mess inherent in solving complex problems. It ends with suggestions for how HCI research can help supplement these toolkits and reshape design practice.

### 5.1 Repetition of Methods

As has been shown repeatedly in design scholarship, the tools we use shape us and our conceptualization of the world [62, 181]. With the majority of toolkits using DT as their core design method, we propose that the use of these toolkits perpetuates the epistemological process which has already contributed to inequity in design

[10, 46]. Although these toolkits draw from alternative design traditions such as Inclusive Design, Participatory Design and Value Sensitive Design, the prevalence of DT shows that the toolkits are still approaching design equity through an affirmative, rather than transformative justice lens. Furthermore, design traditions meant to create equitable outcomes have a history of appropriation by industry [89]. For instance, accessible design movements, originally led by disabled activists were taken over by corporate actors, and now for-profit industries have emerged to profit off an institutionalized version of accessible design [90]. PD has also been critiqued as becoming detached from its democratic and anti-capitalist roots: rather than involving users to create a more democratic technical future, designers have employed user participation to improve the usability of their products in self-interest in a way that extracts value from marginalized communities [26, 59]. Research in PD and ID has addressed some of these concerns, but the toolkits do not seem to be engaging with novel scholarship [29, 92, 178]. Repeating the same already dominant design methods leaves no space for new, emergent design approaches. It also fails representational justice, as it denies marginalized groups the opportunity to design using their own methods.

Feminist HCI scholars have discussed the need to recognize new forms of HCI based in standpoint epistemology, which recognizes that the standpoint and lived experience of knowledge creators influences that knowledge [11, 94]. Including community in the creation of the design process itself is vital [64]. Participation must also occur in a way that is comfortable and productive for all, not just the dominant paradigm [135]. Bringing in diverse standpoints to the actual creation of the design process would also work towards satisfying Fraser's recognition requirement for justice. Next we delve into the repeated method of empathy in deeper detail, as ill-practiced empathy can risk further exclusion of marginalized voices.

**5.1.1 Empathy.** The practice of relying on empathy to design for others similarly neglects the importance of standpoints. Empathy encourages designers to put themselves in others' shoes, without acknowledging that they will always bring their own lived experience. Bennett and Rosner [19] discuss the various ways that empathy has been used in design, from personas to disability simulators. Particularly in design, empathy has become a tool to increase efficiency, and reduce the need for user involvement, neglecting ethical considerations [97]. Crucially, regarding toolkits' style of access equity, calls for empathy also perpetuate an assumption that marginalized communities cannot be designers, they can only be designed *for* [19, 44]. Empathy as a design strategy fails to satisfy Fraser's definition of justice because it is rooted almost entirely in recognition without actually actually addressing either of the two other areas: representation and redistribution. While empathy acknowledges that diverse users exist, there is little attempt to include them in the actual design or decision-making processes (representation). Moreover, it can be further argued that, although intended to do so, empathy may never yield true recognition of marginalized groups because it does not actually destabilize the existing societal hierarchies that lead to the problems of misrecognition. If misrecognition, as defined by Fraser, is to be "denied the status of a full partner in social interaction and prevented from participating as a peer in

social life as a consequence of institutionalized patterns of cultural value that constitute one as comparatively unworthy of respect or esteem," then empathy alone cannot truly address it as it will only reflect these pre-existing dominant institutionalized patterns. An alternative is what Liu and Shange[126] term as "thick solidarity" where interpersonal empathy is supplemented with deep historical analysis, and solutions are led by those that are most affected by a problem.

## 5.2 Approach To Equity

We return to the dichotomy between access-based equity and world-building based equity. To review, in an access-based equity approach, the resources to be redistributed are the technologies themselves, and oppression would be based in the lack of availability or usability of technology for marginalized groups [31, 153, 175]. In contrast, world-building based equity focuses on redistributing epistemological power to shape the structure of the world [62]. Fraser's affirmative and transformative justice pair closely with the access equity and world building equity. In the access-based equity approach, designs are made for marginalized populations. The underlying power balance between designer and user is actually caudified, as the designer is holding all the power. In contrast, world-building based equity is transformative: by distributing the power to design, the power structure of designer versus user is actually dismantled, challenging both as concepts.

Upon analyzing the approaches to equity that design toolkits are signifying, we show that toolkits focus more on the digital divide, deficit model and access issues rather than sharing the power of world building. The toolkits mainly addressed designers in an explicit signal of who an ideal user for the toolkit is. They address designers who wish to change social structures and spread justice through their design process. The concept of an ideal user taking up the toolkit for equity runs the risk of echoing problematic narratives that suggest an individual innovator can solve complex social issues through technology [44]. The tech hero story is nearly always someone who already has power, social privilege, and can impose their world design on others [101]. The majority of toolkits thus present justice as a problem of recognition and focus on advocating for a more expanded understanding of "users," but did not mention giving them any recognition as independent agents. The limited scope of these toolkits made any actual transformation difficult and the majority of these toolkits primarily serve a reflective purpose rather than providing actual systemic critique.

The affirmative nature of the access based approach to equity means that it does not fundamentally change the system in which inequities thrive. As Greene argues, inequity is "a feature of a capitalist economy, not a bug, and the access doctrine makes this inequality sensible and navigable" [83]. Rather than attending to the socio-political dimensions of inequity in design, attempts to address access issues allow designers to avoid confronting systemic oppression, and how technology's context and content contribute. In the toolkits, we see this dynamic with the Business Case motivation in conjunction with the costs of the toolkits themselves. Despite the redistributive visage of the access approach, it in fact fails to redistribute real power.

The central narrative in the Business Case is the push to include increasing numbers of people as potential customers. However, marginalized communities are often under-resourced in capitalist terms, and therefore have less value under a business model [150]. The Business Case re-centres the interests of those who already have power, assuming increasing access to technology simply means more footholds of power for the distributing actor [102]. It also runs the risk of making things accessible only so long as it is convenient and profitable. This is made apparent by the concerns around equity initiatives being too costly, and in the toolkits by the lack of specification of requirements. As with empathy, the problem with the business case - and toolkits, at large - is the emphasis on efficiency that is antithetical to the foundations of justice that require more sustained engagement and prolonged work. The almost exclusive focus on recognition in the analyzed toolkits is likely a reflection of this emphasis on capital profit; while recognition is easily implemented, redistribution and representation lead to a loss of profit and time, respectively [68].

**5.2.1 *Loci of Power.*** One of the key critiques of inequitable design is the way that the power to shape the world is concentrated among a key few. Design equity toolkits do encourage the involvement of marginalized communities by calling for diverse stakeholders to be invited to participate in the use of the toolkit, however they are still being directed by a designer, who ultimately holds the power of creation. The toolkits further address designers rather than community members through the nods to DT, which a designer would be very familiar with, but a community member may not. In dominant design paradigms there is a dynamic in which the designer is considered an expert, and the target community is said to have lived experience, but not treated as experts. Assets-based design and PD scholars have shown this to be demonstrably false, and that the assets and strengths of users are often underestimated in design [27, 184]. Instead of a system which centres the kind of expertise a designer may bring to world building, a more equitable distribution of design power would equally prioritize the expertise of diverse contributors, and involve all of them in the use of the toolkit. While one may interpret this inclusion as being a form of representation, Fraser defines representation as being a "dialogical approach" where important aspects are a result of collective decision making by all those involved, and justice necessitates the "dismantling [of] institutionalized obstacles that prevent some people from participating on par with others" [68]. PD scholarship shows that without a redistribution of power, misrepresentation will remain an issue as there is no active attempt to alleviate the institutionalized barriers that prevent some from participating on par as others [29]. Dindler and Iversen [49] suggest taking a relational perspective in which all agents in a collaborative setting gain power through mutual education. By treating perspective as expertise, the professional knowledge of the designer is balanced, and the authority to make decisions can be dispersed [30].

### 5.3 Accounting for Mess

The toolkits analyzed rarely mentioned requirements for use, such as existing relationships with community members and the in-depth, long-term commitments that equity projects require. The culture around design features quick iteration and little reflection,

always moving on towards the next great innovation [166]. However, for partnerships with communities to work, deep relationships need to be formed to create trust and understanding [23]. With quick technological approaches, designers tend to 'parachute' into communities without adequate foundational work, and simply attempt to apply the same technological solutions that appear to work in other communities. One of the critiques of DT is the deterministic and solution oriented approach it takes [109]. As a result, DT can fail to account for change.

In contrast, practices in alternative design traditions call for engaging with messiness, acknowledging the complex interactions between stakeholders, technology and social structures which are necessarily involved in an equitable design process [13, 25, 122]. This highlights an inherent flaw in the use of toolkits for equity. Toolkits are meant to create frictionless experiences for its users, but addressing issues of inequity will always be friction-filled [129]. Toolkits may seem like a quick, low-cost way to extend the customer base of companies and increase access to technology, but without addressing the mess of socio-political oppression, little redistribution of power can occur. The toolkits analyzed herein already indicate this, with very few calling for long-term commitment nor deep relations with the target community making justice an unattainable goal.

Explicit evaluation systems have been called for to ensure accountability to the democratic origins of PD, which can be mirrored here to ensure the long-term effects of toolkits [27]. Evaluations include the relationships between participants and designers, power relations within a design system, and importantly, the outcomes of a PD project [30, 49]. By focusing on the long-term impacts and empowerment of community, evaluations can shift power and accountability to serving the community.

Toolkits' lack of engagement with mess may explain why they engage with affirmative, rather than transformative justice. Transformative change disrupts entrenched systems which makes it messier and unruly. Light [122] explicitly calls for a messy future, as engaging with mess disrupts the image of the seamless system and allows for disruption. Particularly as most of the toolkits call for community participation, mess is inevitable and must be prepared for [123] just like any interpersonal decision making process. Mess may take more time and resources as it fractally multiplies a design problem, but mess is necessary for real transformation.

### 5.4 Supplementing Toolkits

Despite critiques offered here, design equity toolkits do address vital issues in the design industry, and with such complex issues as we see in inequitable design no one solution can be perfect. This study largely analyzed the toolkits as stand-alone artifacts. However, framing these toolkits as parts of a larger redistributive justice effort, and as reflective tools to supplement a design process, show their potential. The danger presented by toolkits is that they are often conceptualized as complete, a collection of pieces meant to symbolize the best approach to a problem, without needing additional components. Due to the nature of equity, however, as a constantly evolving process, there cannot be an ideal design equity toolkit. The outcomes of a toolkit depends on the context of use and cannot be fully investigated through the artifact alone. Moreover,

justice requires a higher-level critique of society and institutions that is not possible within the limited scope of toolkits.

For guidance in supplementing equity toolkits we can turn back to our alternative design traditions and how they are engaging with justice focused HCI disciplines, and identify how Fraser's dimensions of justice can be incorporated in toolkit use and whether the use of toolkits lead to *nyaya* as experienced by the communities. Projects in the Feminist, Queer, and Postcolonial HCI spaces have engaged directly with VSD and PD [33, 48, 64, 87, 91, 124, 136, 148, 159, 171]. These approaches to disrupting the norm in design exemplify Fraser's [71] dimension of recognition, which calls for "a difference-friendly world where assimilation to majority or dominant cultural norms is no longer the price of equal respect" (ibid). They also engage with the dimension of representation by emphasizing the importance of perspective and representing diverse voices in the design process, in particular the power structures at play in the design space [30]. The variety of voices will doubtlessly lead to a multitude of designs resulting from different perspectives, disrupting deterministic problem solving approaches (for ex. DT's singular solution oriented approach). For example, Queer HCI has offered directions for design, challenging discrete categories, taking a non-normative vision with interaction technology and engaging with mess [122]. They also call attention to the need for action based work that is inherently political and results in change, fulfilling the need for transformative justice [11, 26]. Rather than advocating for a cure-all solution to equity in design, alternative design traditions acknowledge that design must consciously engage in transformative justice despite (or rather embracing) the mess it makes.

The first supplement, therefore, must be real community empowerment. As discussed, for toolkits to fulfill Fraser's requirement of representation, the power to actually participate in world building must be shared [27, 49]. Therefore, partnerships cannot be divided into designer-user or researcher-participant. Mulgan [139] discusses the imperative for strong relationships to bring forth social innovation, and critical design projects have been shown to improve as deeper relationships are formed [13]. To emphasize this need, toolkits must explain the centrality of a strong community relationship, or point to resources that do. Users of the toolkits themselves can engage in transformative representational justice here, by ensuring that marginalized voices are being centered in the design process and attending to power structures within the design process [28, 178]. Serpa and Silva [155] offer a solidarity approach to design in their critique of empathy as a dialectical process of shared agency. Their theory additionally matches well with Fraser's transformative justice, as they propose a solidarity based practice will be transformative to both designer and community members, dismantling both categories and making anew. Although empathy is often treated as a keystone in design, solidarity offers a different framing that could address issues which emerged in the toolkits.

Embracing inefficiencies and complications, and thus embracing the messiness of social justice issues and change, is an additional supplement that should be added to design equity toolkits. Allowing for heterogeneity in design, through working with the community, can incorporate recognition justice by legitimizing different cultural engagements with design, not just the dominant paradigm [140]. The current approaches to design equity in toolkits prioritize

efficiency and ease of use, which is understandable given the general aim of toolkits [129]. However, change is an inherently messy process. Maintaining dominant paradigms has less friction for those already in power, making small adjustments or adding on steps to the problematic practice will not create transformation [85]. As Hamraie [90] highlights, we need to acknowledge "the messiness of access-making in conditions shaped by colonialism, militarism, and injustice." The narrative of productivity and efficiency was built by those who had world building power in the past, but that need not be the only way forward [122]. Relationships additionally do not occur overnight, and investing in them will add time to the design process, but for design equity this added time is non-negotiable. While toolkits may want to appear efficient, there are moments where efficiency is incompatible with equity [62].

Finally, the framing of design equity toolkits must undergo a shift. At the outset of this study we asked *How do design equity toolkits signal what approaches to equity the design community is taking?* Based on our findings, the design toolkit community is taking an access gap approach to issues of equity which focuses on accessibility for disabled users, increasing spreading technology to communities who do not have it, and overall increasing the number of potential customers. However, the stakes of design equity are much higher than access, and focusing on a deficit model simply exacerbates existing power dynamics. Here we can draw on critical pieces from PD, in which the scale of design that matters is shown to be systemic and based in actual structural change [26]. PD scholars identify equitable design as a "process, not a destination" [99], and emphasize the need to destabilize design norms and center the value of communities [92]. To stabilize these complex issues, providing infrastructures of support for participation is key [50], and toolkits can fill this infrastructural role with significant adaptation.

When considering the power of world building with design, the stakes run far beyond individual digital interfaces, and involve systems of oppression that pervade social and political spaces. Escobar [62] argues that design has the power to *defuture*, or dictate a singular vision of the future from dominant narratives and instantiate it as the only viable option. Taken from Fry [76], defuturing as a concept exposes the biases in design which result in oppressive and unsustainable world-making focused on short-term gain. Then, in instances of design equity, we must ask whose vision of an equitable future is being put forward? Projects led by designers may envision an equitable future which is their own, and by instantiating it they may foreclose the equitable future of a marginalized community. This issue touches on all three dimensions of Fraser's justice and must be addressed for toolkits to be effective.

## 5.5 Implications for Future Study

As indicated by Wong [183], reliance on toolkits indicates a de-politicizing and de-contextualizing of complex social issues. Rather than continually creating more toolkits which present reductionist approaches, scholarly work should work to lean further into mess, by redistributing knowledge power, challenging the full system of design, and engaging with expanding conceptualizations of design. Furthermore, this study covers English language design equity toolkits. Diverse perspectives which would come from non-English (and non-Western) sources are key for the future of design equity

and therefore should be explored by future studies. Toolkits have also become more popular in other areas of HCI [119, 132, 176, 183], and this analysis through a justice lens may be applied to other collections of toolkits as well.

Returning to conceptualizations of justice in terms of *nyaya*, discourses need to take into account plural identities and diverse perspectives in contrast to hegemonic global univocal visions of justice [154]. While institutions are increasingly called on to attend to inequities, the formality of institutions makes them likely to attend to *niti*. *Niti* represents the procedural and institutional ideals of justice, and is represented in the toolkits, while *nyaya* are the actions taken to own it, and build up to institutional change. Subsequent studies could take a long-term approach to assess the *nyaya* side of design equity in practice.

Instead of aiming to guide users towards assimilatory tech usage, future design equity toolkits need to focus on highlighting the contributions of marginalized communities on their own terms. Drawing from tech equity manifestos such as the Crip Technology Manifesto [90], the Feminist Tech Manifest-No [78] and the Design Justice Principles [44], there are paths to expanding the conceptualization of design already laid forth beyond DT and institutionalized practice to localized creation practices. These manifestos emphasize the legitimization of marginalized knowledge, and Disability Justice and intersectional feminist theorists highlight the importance of diverse standpoints in understanding oppressive systems [16, 41]. Future studies could engage these works, and contrast them with access-based equity toolkits.

Lastly, a toolkit evaluation system could be developed to assist designers in assessing whether a toolkit is appropriate for their project and whether it will be effective in power redistribution efforts.

## 5.6 Limitations

This paper performs a thematic analysis of design equity toolkits and interprets the contents and aesthetics as signals for epistemological approaches to design equity. This analysis cannot speak to the actual outcomes of these toolkits, the actual intentions of the creators of the toolkits, or their use. Future work can gather narratives of those who have used design equity toolkits, and assess the outcomes of projects which used equity toolkits in their process. Subsequent studies might also interview the creators of these toolkits to gain better insight into the intentions and theories behind their design, as well as what contextual environments they envisioned their toolkits being employed.

Furthermore, this study focuses on Euro-American design contexts. There are a multitude of other design approaches and framing of equity outside of the Euro-American space, which should be analyzed to gain a more fulsome picture of design equity approaches on a global stage. Post-colonial approaches to PD could guide this work [135]. It is also important to note that covering the topic of design equity from an academic standpoint has limitations. As Sims [158] discusses, design and academia are both privileged actors that form an exclusive class of labour. Future work should work with groups outside design and academia, as well as outside the Euro-American space to gain multiple perspectives on equity in design.

## 6 CONCLUSION

In this article we have analyzed how toolkits signal the epistemological framing of design equity. The current approach to design equity seems to be focused on addressing an access gap to technology, relying on a deficit model which positions equity as an issue of 'haves' and 'have nots'. Drawing on disability justice, post-colonial and intersectional feminist knowledge we show that this approach is insufficient for creating justice-oriented design equity, which concerns redistributive justice and the sharing of world building power.

As HCI as a field becomes more concerned with issues of equity, recognizing the socio-political aspects of technology distribution, as well as the larger ontological power of design is vital. The analysis performed herein shows the dangers of not attending to loci of power, which is particularly salient due to the tight relation of power between designers and academics. Additionally, both designers and academics have in the past tended to formalize or systematize complex issues, which this analysis shows to be problematic [158]. Toolkits can serve as supplements for working towards an equitable design process, but must be used in concert with processes to address systemic inequities and attending to the potential dangers of keeping the designer at the centre of the creation process. Similarly, in academic approaches to design, leaning into complexities and focusing on true power redistribution will be key to addressing inequities. No one toolkit, or paper, can offer a perfect solution, as incorporating diverse standpoints and embracing change cannot be contained within a static artifact. Instead embracing possibilities, and reimagining configurations of power in partnership with communities can guide design in the mess of equity.

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## A THEME DEFINITIONS

## B TOOLKIT TAGGING

DT = Design Thinking PD = Participatory Design ID = Inclusive Design VSD = Value Sensitive Design

## C TOOLKIT LISTING

- (1) Liberatory Design: [liberatorydesign.com](http://liberatorydesign.com)
- (2) Cambridge Inclusive Design: [inclusivedesigntoolkit.com/](http://inclusivedesigntoolkit.com/)
- (3) Inclusive Design Guide: [guide.inclusivedesign.ca/](http://guide.inclusivedesign.ca/)
- (4) Microsoft Inclusive Design Toolkit: [microsoft.com/design/inclusive/](http://microsoft.com/design/inclusive/)
- (5) Racism Untaught: [racismuntaught.com/](http://racismuntaught.com/)
- (6) UnBais Fairness Toolkit: [unbias.wp.horizon.ac.uk/fairness-toolkit/](http://unbias.wp.horizon.ac.uk/fairness-toolkit/)
- (7) Ethical Explorer Pack: [ethicalexplorer.org/](http://ethicalexplorer.org/)
- (8) Envisioning Cards: [envisioningcards.com/?page\\_id=2](http://envisioningcards.com/?page_id=2)
- (9) Equity Centered Community Design: [creativereactionlab.com/our-approach](http://creativereactionlab.com/our-approach)
- (10) Model of Care for Co-Design: [beyondstickynotes.com/model-of-care-for-codesign](http://beyondstickynotes.com/model-of-care-for-codesign)
- (11) Design for Belonging: [designforbelonging.com/](http://designforbelonging.com/)
- (12) Community-led Co-design Toolkit: [co-design.inclusivedesign.ca/](http://co-design.inclusivedesign.ca/)
- (13) And Then What Happened?: [libbyheasman.design/product/and-then-what-happened-storytelling-card-deck/](http://libbyheasman.design/product/and-then-what-happened-storytelling-card-deck/)
- (14) A Social Designer's Field Guide to Power Literacy: [power-literacy.com/](http://power-literacy.com/)
- (15) Inclusive Co-Design Toolkit: [info.bridgeable.com/inclusive\\_codesign\\_toolkit/](http://info.bridgeable.com/inclusive_codesign_toolkit/)
- (16) Ethics for Designers: [ethicsfordesigners.com/](http://ethicsfordesigners.com/)
- (17) Building Utopia Deck: [buildingutopiadeck.com/](http://buildingutopiadeck.com/)

Theme	Definition
Design Thinking	The steps described in the toolkit mirror those of Design Thinking, or the toolkit references Design Thinking as a part of their design process.
Process- Reflective	The user of the toolkit is told to reflect on themselves and their experience.
Process- Informational	The toolkit includes background information about issues in equity, target communities or the history of their design approach.
Process- Empathy	The user of the toolkit is told to empathize, “put themselves in someone else’s shoes” or imagine the experience of others
Process- Reflective	The user of the toolkit is told to reflect on themselves and their experience.
Requirement- Community	The toolkit tells the user of the toolkit they must have connections in their target community and a strong enough relationship with their target community to have them participate in using the toolkit
Requirement- Commitment	The toolkit tells the user of the toolkit they must commit long term to the process outlined in the toolkit or to the design process they are using the toolkit in
Motivation- Justice	The toolkit references justice, rights, ethics or other socio political reasons to use the toolkit
Motivation- Empathy	The toolkit references thinking from others’ perspectives as motivation to use the toolkit
Motivation- Business	The toolkit references increasing a user base, revenue or company image as a reason to use the toolkit
User- Designer	The user of the toolkit is a designer. The user can be defined as the person who will be facilitating the use of the toolkit, not necessarily everyone who is participating in the toolkit prompts. The designer may be using the toolkit for their own benefit or to benefit others.
User- Community	The user of the toolkit is a group of people who the toolkit is meant to benefit.
Cost- Monetary	The toolkit must be purchased. Some toolkits have a physical copy that must be purchased, and a digital copy that can be obtained through data sharing
Cost- Data	The user must submit their email or other identifying information to access the toolkit

Toolkit Name	Design Tradition	Source	Cost	Audience	Format
Liberatory Design Toolkit	DT, PD	Industry	Free	Designers	Cards
Cambridge Inclusive Design Toolkit	DT, ID	Academia	Free	Designers	Website
Inclusive Design Guide	DT, PD, ID	Academia	Free	Designers, Researchers, Community	Website
Microsoft Inclusive Design Toolkit	DT, ID	Industry	Free	Designers	PDF, Cards
Racism Untaught	DT	Academia	Monetary	Designers, Researchers	Website
UnBias Fairness Toolkit		Non-Profit	Data	Designers	PDF
Ethical Explorer Pack	VSD	Industry	Monetary, Data	Designers	PDF, Cards
Envisioning Cards	VSD	Academia	Monetary	Designers	Cards
Equity Centered Community Design	DT, PD, ID	Non-Profit	Monetary, Data	Community	PDF
Model of Care for Co-Design	DT, PD	Industry	Monetary	Designers	Book, PDF, Website
Design for Belonging	DT	Industry	Monetary, Data	Designers	PDF
Community-Led Co-Design	PD, ID	Academia	Free	Designers, Researchers, Community	Website
And Then What Happened?	-	Industry	Monetary	Designers	PDF, Cards
A Social Designer's Field Guide to Power Literacy	DT, VSD	Industry	Monetary, Data	Designers	PDF
Inclusive Co-Design Toolkit	DT, PD, ID	Industry	Data	Designers	PDF
Ethics for Designers	DT, VSD	Academia	Free	Designers	PDF, Website
Building Utopia Deck	PD, VSD	Non-Profit and Industry	Data	Designers, Community	Cards

Toolkit Name	Process	Requirements	Motivation	User
Liberatory Design Toolkit	Reflective, Active, Empathy	Community, Commitment	Justice	Designer
Cambridge Inclusive Design Toolkit	Empathy, Information	-	Empathy, Business	Designer
Inclusive Design Guide	Active, Empathy, Information	-	Justice, Empathy	Designer, Community
Microsoft Inclusive Design Toolkit	Active, Empathy, Information	-	Justice, Business	Designer
Racism Untaught	Empathy, Information	-	Justice, Empathy	Designer
UnBias Fairness Toolkit	Reflective, Active	-	Justice	Designer
Ethical Explorer Pack	Reflective, Active	-	Justice, Business	Designer
Envisioning Cards	Reflective, Active	-	Business	Designer
Equity Centered Community Design	Reflective, Active, Empathy	Community	Justice	Community
Model of Care for Co-Design	Active, Information	Community, Commitment	Empathy	Designer
Design for Belonging	Reflective, Empathy	Commitment	Empathy	Designer
Community-Led Co-Design	Reflective, Active, Information	Community, Commitment	Justice	Designer, Community
And Then What Happened?	Reflective, Active, Empathy	-	Empathy	Designer
A Social Designer's Field Guide to Power Literacy	Reflective, Empathy	-	Justice, Empathy	Designer
Inclusive Co-Design Toolkit	Reflective, Active, Empathy, Information	Community	Business	Designer
Ethics for Designers	Reflective, Active	-	Business	Designer
Building Utopia Deck	Reflective, Active	-	Justice	Designer