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Design thinking community health & well-being: Creating with and for community capacities

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Abstract: This paper shares initial findings from an ongoing study assessing the value and limitations of a two-year community-engaged design thinking initiative intended to foster more inclusive and holistic public health community-based innovations with underserved communities across one county in the southeast U.S. The initiative hopes to institutionalize and socialize community-based design within a public health framework and build organizational and individual capacities. Initial findings indicate that participants find value in design thinking tools and processes, and that such processes have transformed mental models, fostered relationships, and built skills for participants' professional, civic, and personal lives. Findings also surfaced challenges related to power inequities, a lack of alignment between grant initiative requirements and participant needs, as well as rapidly evolving guidelines and divergent capacities. Recommendations for researchers and practitioners are noted, including pursuing a relationship-rich design practice, investing time and energy in framing issues of power and positionality, ensuring long-term and flexible access to resources, and creating consistent visual validation across the initiative.

Keywords: design thinking, community-based innovation, capacity building , public health

1. Introduction

How might design thinking initiatives prepare and support all constituents involved in situated social change efforts? This paper explores the need for more investigation into how design thinking initiatives can support learning experiences that build change-making capacities, yield valued changes, and help develop ownership and agency for diverse participants across social sector organizations. In particular, researchers sought to study whether and how DT:

- Supports inclusive and participatory design practices;
- Changes mindsets towards a human-centered culture; and
- Increases DT knowledge and skills for community participants at all levels.



In order to answer these questions, we examine the value and limitations of the first phase of a two-year community-based design thinking (DT) initiative located in a southeastern rural U.S. county. The goals of the initiative are to (1) develop individual and organizational capacity towards improved public health outcomes for historically marginalized communities, (2) strengthen capacity and skill-building across the community, and (3) foster more inclusive innovations by generating opportunities to institutionalize and socialize community-based design within a public health framework.

We define design thinking as a reflexive practice (Schön, 1983) for collaboratively designing responses to situated problems (Buchanan & Margolin, 1995; Lave & Wenger, 1991). The process emphasizes the need to begin with framing and empathy; generate inclusive, holistic, and actionable definitions of complex situations; encourage creative and intentional ideation; and facilitate communities making, testing, and revising prototyped solutions. Prior research notes that challenges in the public health sector require more inclusive and imaginative innovations. Typical problems are often incredibly complex, multi-faceted, and emergent (Abookire et al., 2020; Neuhauser & Kreps, 2014), suggesting a clear need for new approaches to problem identification and solving.

1.1 Initiative background

This DT initiative formally began through a proposal request from a charitable trust that visualized the shared commitment to health equity through designing collaboratively with communities by a large healthcare organization and the grant funding agency. Initiative planning began in early 2021 and is set to run through August of 2022. In response to histories of exclusion and marginalization in the area, this initiative strives to create a community engagement model that can strengthen the capacity of non-profit social sector organizations in the county to codesign services that will address the drivers of poor health within historically underserved communities (especially people of color and people living in poverty). Initiative leaders believe that DT is a promising method for successfully disrupting service provider assumptions and entrenched organizational practices so they can center the needs of community members. They see DT as a tested model that offers specific steps for engaging community voices in the development and alignment of services that work for the people who are using them.

Introducing the DT process to participants in this study involved a series of workshops, consulting, mentoring, resource distribution, and related activities with three community agencies and individuals from the targeted community, initiative leaders from the sponsoring healthcare institution, and facilitators from a design thinking consulting firm.

Grant guidelines and initiative leaders set the initiative timeline, which included three Phases. The Phases were designed to move participants through DT phases of inspiration, ideation, and implementation. In order to capture the participants' experiences at each Phase, the investigators reviewed the DT initiative goals and generated research questions, timelines, and study instruments to assess initiative goals and address gaps in current

research on DT processes. As a part of the assessment and research process, participants were invited to complete three 10-minute surveys and participate in two semi-structured interviews at key points throughout the initiative.

Over the course of four months, Phase One of the initiative prompted participants to build relationships within their design teams and learn the basics of design thinking processes. This phase included three workshops for participating design teams, as well as biweekly check-in meetings with directors of the three nonprofit agencies. The first workshop was designed to enable each design team to learn about DT processes, build relationships, brainstorm possible desired outcomes, and discuss community assets, strengths, and shared meaning. Workshops two and three focused on inspiration framing, idea collection, and refinement of possible next steps. Between workshops, participants were asked to engage community members about their work and solicit feedback.

Phase Two focused on identifying the most promising prototypes to develop and cultivate over a four month period. For example, participants from an organization that focuses on food assistance expressed interest in extending services towards housing insecurity and youth safety in the community. Phase Three will focus on creating, testing, and revising prototypes over the last half of the grant period.

Table 1 provides a timeline for the DT initiative including dates, events, activities, participants in attendance, and assessments.

Funding for this initiative came through a grant from a charitable trust and in-kind support from the sponsoring healthcare institution. The grant supports the design and facilitation of the workshops, the research study, and participants' time. Participants from the local nonprofit agencies over the age of 18 received \$100 stipends per workshop—up to \$1200 over the course of the two-year initiative. Participating minors receive modest gifts of appreciation over the duration of the initiative. This research was approved by the Institutional Review Board (protocol #21-163) at the first author's institution.

Table 1. Initiative Timeline¹

Timeline	Event	Activities & Artifacts	Participation	Assessments
May 11 to June 1, 2021	Kickoff; Introduction to Design Thinking and Mindsets	Design a Gift; Community-Based Reflection & Storytelling; Theme Analysis Clustering for Focus Area	Design Teams (3) Initiative Leaders (2) Facilitators (2) Researcher Team (1)	Initiative and Engagement Survey 1; Observation Notes; Artifacts
June 26 to July 1, 2021	Focus and Inspiration; Inspire Ideas within Focus Area	Identify Focus Areas; Create Interview Guide; Identify people to Interview from the community and conduct	Design Teams (3) Initiative Leaders (2) Facilitators (3) Research Team (1)	Observation Notes; Artifacts
July 2-31, 2021	Initiative participant research interviews	Zoom interviews	Design Teams (3) Initiative leaders (2) Facilitators (2) Researcher (2)	Semi-Structured Interviews
August 11 - August 21, 2021	Imagination; identify & Select Top Ideas for Prototyping	Brainstorm; Prioritize Ideas; Vote on Ideas	Design Teams (3) Initiative leaders (2) Facilitators (3) Research Team (1)	Observation Notes; Artifacts

2. Does design thinking support inclusive, situated designs for well-being across diverse communities?

In its most basic form, design thinking is a collaborative, problem-finding and problem-solving process (Cross, 2011) that prompts participants to be more aware of their positionality (Lake et al., 2018), to empathetically and critically explore complexities, (Benson & Dresdow, 2015; Royalty et al., 2014), and to iteratively test solutions. It is meant to address challenging and intractable problems by helping to generate viable, sustainable, real-world solutions (Costanza-Chock, 2020; Wagoner, 2017).

Practitioners and researchers of DT from across a diverse array of fields (including design, health, management, policy, and more) argue it is valuable for designing viable and useful responses to shared social challenges and for fostering skills and mindsets for sustaining such practices (Acklin, 2013; Borja de Mozota, 2011; Costanza-Chock 2020; Drayton, 2019; Forrester, 2018; Junginger, 2014; Kania et al., 2018; Liedtka & Bahr, 2019; Michlewski, 2008;

¹ Unsurprisingly, the DT initiative experienced minor fluctuations in participant engagement across phase one. The youth oriented after school program lost three youth participants and gained two new participants. In addition, two participants on the church-based organization design team were unable to attend all meetings and complete interviews.

Morelli, et al, 2021; Sanoff, 2007; Vink et al., 2019; Wagoner, 2017). Recent research also suggests that DT can be more successful than expert, techno-scientific approaches to intractable public health challenges (Abookire et al., 2020; Altman et al., 2018; Huang et al., 2018; Jones, 2013; Molloy, 2018; Tseklevs & Cooper, 2017). Across public health fields, DT has been used to address inequity through the (re)design of institutions, programs, projects, services, and technologies. Researchers are concluding that DT can foster more collaborative problem-solving, greater empathy across diverse stakeholder groups, and more valuable and viable outcomes (Tseklevs & Cooper, 2017; Jones, 2013; Ku, 2020; Neuhauser, 2017).

Prior research also shows DT has contributed to many injustices (Akama et al., 2019; Costanza-Chock, 2020; Grimes et al., 2021; Jamal et al., 2021; Rittner, 2020). Design has been a massive contributor to capitalist and colonial efforts to create, consume, and expand beyond sustainable limits (Fry, 2017; Vink, 2021). It can encourage engagement practices that privilege replicability, scalability, and profitability (Akama et al., 2019). For example, the design of many Western healthcare structures, processes, and instruments has caused significant harm, especially to historically marginalized communities, including Indigenous, BIPOC, disabled, queer, trans, remote communities, women, and others. When design is understood as an activity that determines our external environments and as a process that shapes our internal realities, its power to bring certain ways of being into the world at the expense of other possibilities becomes visible (Escobar, 2018; Vink et al., 2021).

In response to these concerns, numerous practitioners and researchers have argued for the need to codesign with diverse communities in order to create more inclusive and responsive services that meet the goals of historically marginalized communities (Ansari, 2016; Creative Reaction Lab, 2020; Duan et al., 2020). Participatory and systems design has responded to these challenges by prompting designers to engage diverse publics in the creation of possible futures (Vink & Koskela-Huotari, 2021). Vink et al. (2021) define this approach to design as one that seeks to intentionally reshape structures and processes within institutions through facilitating “the emergence of desired forms of value co-creation” (p. 1). These forms of design create space and opportunity for meaningful participation throughout the process (Huang et al., 2018; Oh, 2018; Sanoff, 2007). Current efforts are focused on examining what structures enable publics to design interventions that impact their communities present and future (Fonseca Braga et al, 2021).

With the goal to codesign across internal and institutional structures and processes while building capacities to support situated needs, this initiative enacts a participatory systems approach. Given the complexities, potential benefits, as well as the challenges of this approach to design, the research team employed a systemic action research plan outlined next.

3. Method

Recognizing the complexity and fluid nature of the three-phase, 18-month Design Thinking initiative, the research team chose to employ a systemic action research process (Burns,

2014; Ison, 2008). The study utilizes mixed methods (Creswell & Clark, 2018) and instruments, including surveys, interviews, workshop observation, and analysis of design team artifacts. This approach allowed the team to document and provide feedback intended to support initiative processes and activities as they unfolded. The Phase one research presented here included an Initiative and Engagement survey, observation of workshops, analysis of workshop artifacts, and semi-structured interviews. The survey was designed to measure participant demographics, prior engagement with and feelings about their agency, familiarity with DT practices, as well as their innovation self-efficacy (Schar et al., 2017) and creative agency (Royalty, Oishi, & Roth, 2014). Semi-structured interviews focused on participants' experiences and challenges. The combination of observation, artifact analysis, survey and interview data enabled the research team to identify barriers and challenges as well as particularly effective DT strategies.

3.1 Participants

The DT initiative included professionals from a large healthcare organization ($n=2$; hereon referred to as *initiative leaders*) who received the funding and hired consultants from a design thinking firm to deliver and facilitate workshops ($n=3$; hereon referred to as *facilitators*). Our university-based research team ($n=4$; hereon referred to as *researchers*) included three faculty members and an undergraduate research assistant.

The DT initiative invited three local nonprofit agencies to participate: (1) A youth oriented after-school program ($n=10$); (2) A church-based organization working on food equity and distribution ($n=10$); and (3) An organization of non-profit leaders focused on identifying and mapping opportunities for underserved communities ($n=9$). The nonprofit agencies were invited to participate because of their commitment to sustain and strengthen prior and current partnerships with the healthcare organization and support place-based innovation. Participants from the nonprofit organizations include each agency's director, staff, volunteers, and client members (hereon referred to as *agency directors*, *agency staff*, *agency volunteers*, and *agency clients*) assembled into respective teams for the work of the initiative (hereon referred to as *design teams*). Table 2 provides additional demographic data describing the various groups involved in the initiative.

Table 2. Participant Demographics

	Youth oriented after-school program (n=10)	Church-based organization (n=10)	Non-profit leaders (n=9)	Initiative leadership (n=2)	Workshop facilitators (n=3)
Age range	9-12 = 100%	13-24 = 20% 25-34 = 10% 35-64 = 70%	18-24 = 11% 25-34 = 78% 35-64 = 11%	13-24 = 0 25-34 = 50% 35-64 = 50%	13-24 = 0 25-34 = 33% 35-64 = 67%
Gender	Male = 50% Female = 50% Nonbinary = 0%	Male = 40% Female = 60% Nonbinary = 0%	Male = 33% Female = 67% Nonbinary = 0%	Male = 0% Female = 100% Nonbinary = 0%	Male = 33% Female = 67% Nonbinary = 0%
Race	Black/African- American = 42% American Indian or Alaskan Native = 14% Other = 42%	Black/African- American = 50% White = 50%	Black/African- American = 75% American Indian or Alaskan Native = 12.5% Prefer not to say = 12.5%	White = 100%	White = 100%
Ethnicity	Not Hispanic, Latinx, or Spanish origin = 90% Hispanic, Latinx, or Spanish origin = 10%	Not Hispanic, Latinx, or Spanish origin = 100%	Not hispanic, Latinx, or Spanish origin = 100%	Not Hispanic, Latinx or Spanish origin = 100%	Not Hispanic, Latinx or Spanish origin = 100%
Agency role	Client = 50% Youth = 50%	Client = 40% Volunteer = 20% Staff/Other = 40%	Client = 56% Volunteer = 22% Staff/Other = 22%	N/A	N/A

3.2 Materials and Procedure

Initiative Engagement Survey

The Initiative Engagement Survey was created to capture design team demographics and measure each team member's engagement with their agency, enthusiasm for participating in the DT initiative, and self-evaluation of DT practices. A number of survey questions were adapted from the innovation self-efficacy (Schar et al., 2017) and creative agency scales (Royalty, Oishi, & Roth, 2014). Engagement with the agency included items such as, "I have a high level of input into the design of services at the organization," Enthusiasm for participating in the DT initiative included items such as, "Being a part of this program is

important to me.” Self-evaluations for DT practices ranged from “thinking of new ideas” to “working on a problem even after failure.” The survey included 11 items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The design teams completed the Initiative Engagement Survey at the end of the Kickoff Workshop. Two design team members were not able to complete the survey (n=27). Additional surveys will be administered at midway and at the conclusion of the DT initiative; this will allow researchers to draw further insights about the value and limitations of the process.

Semi-Structured Interviews

Interview protocols were adapted from Lake et al. (2018) and were designed to (1) further clarify survey findings, (2) understand the experiences of design team members, facilitators, and leaders, and (3) assess the value, challenges, and limitations of the initiative’s efforts to date. Interviewees were asked which activities they have found most and least useful, what ideas have surfaced, how those ideas came about, and whether the value and viability of any ideas had been tested outside of their initiative meetings (in their professional, civic, or personal lives). They were also asked what stories (if any) stand out to them about their experience in the initiative, what challenges they encountered, and what recommendations they would give for improving the process. All design team members were invited for interviews. In addition, the initiative leaders from the healthcare institution and workshop facilitators from the consulting firm were invited for interviews. Table 4 includes specific details regarding how many interviews were completed. All were contacted via email and phone to take part in the semi-structured interviews at the end of Phase One. Interviews ranged from 15-50 minutes and were conducted via Zoom or phone. When possible, two team members were present for the interviews. Automated transcriptions were edited by team members to ensure accuracy. Thematic analysis (Braun & Clarke, 2006) was used to identify codes and themes. Researchers worked independently with each transcript to specify codes. The research team then compared codes, discussed extracted themes, ultimately aligning themes and modifying codes as necessary.

Workshop Observation

In addition, a member of the research team observed workshops and reviewed materials generated through the DT process (including meeting agendas, notes, and participant materials).

4. Findings

Research findings emerged from triangulating survey results, interview data, and observations of initiative workshops. For instance, demographic data and design team engagement levels were noted in surveys, while interviews revealed varying levels of motivation and capacity, and workshop observations visualized varying levels of participant

involvement and readiness. Initial evidence shows that DT processes can transform mental models, quickly build capacities, and deepen relationships across groups holding diverse social identities and varying levels of access to power.

The Initiative Engagement Survey was completed by 93% of the three participating design teams. Over half of design team members strongly agreed they valued the opportunity to participate in the program. In terms of sharing ideas, trying new approaches to challenges, and persistence in problem solving, over 50% of design team members agreed to strongly agreed with these descriptors. More than half of design team member agreed to strongly agreed that they have input into the design process at their agency. Table 3 includes the descriptive statistics for the Initiative Engagement Survey items.

Table 3. Descriptive Statistics for Initiative Engagement Survey (n=29)

	Min	Max	Median	Mean	SD
I highly value the services and products offered by the organization/agency.	3	5	5	4.79	0.50
I have a high level of input into the design of services at the organization/agency.	2	5	4	4.18	0.95
I am excited about participating in this program.	3	5	5	4.68	0.55
I feel nervous about participating in this program.	1	5	2	2.11	1.25
Being a part of this program is important to me.	3	5	5	4.50	0.64
I am confident about my ability to contribute.	1	5	5	4.36	0.91
I believe this process will give me the opportunity to have an impact.	3	5	5	4.64	0.56
I feel I can ask for help when something is unclear.	3	5	5	4.57	0.57
I am comfortable asking questions.	1	5	5	4.52	0.85
I think of new ideas when I observe what is taking place in the world.	1	5	5	4.37	0.93
Before finishing my work, I do not mind sharing my initial ideas/rough drafts with others.	1	5	4	4.00	1.24

I am willing to try an approach to a problem that may not be the final or best solution.	1	5	4	4.07	1.07
I continue to work on a problem after experiencing some failure.	1	5	4	4.18	1.06

A total of 26 people were interviewed, resulting in a total of 74% interview participation rate (the food distribution nonprofit added an additional participant who did not take the survey). Interviews were conducted with members from each Design Team, initiative leadership (n=2/2), and workshop facilitators (n=2/3). Table four documents interview participation in further detail.

Table 4. Interview Participation

	After school program	Food distribution & ministry non-profit	Nonprofit leaders collective	Healthcare organization	Consulting firm
Agency clients	5/8	2/6	7/8	N/A	N/A
Agency directors, staff & volunteers	2/2	5/5	1/1	N/A	N/A
Initiative leaders & facilitators	N/A	N/A	N/A	2/2	2/3
Total interviewed	7	7	8	2	2
Total initiative participants	10	11	9	2	3

Table 5 highlights similarities and differences across participating design teams. All teams, for instance, were new to DT, included a diverse group of stakeholders, and valued the process thus far. Differences in the social identities across design teams tracked with differences found in the teams' motivation, access to power and resources, design capacities, and participation. For instance, some teams experienced more attrition and less engagement with initiative processes than others. Analysis also found that the problem definition process of the different teams varied widely in scale and focus. While the design teams were all focused upon the same general issues within the same geographic place, the situated differences of each related nonprofit agency prompted initiative leaders and facilitators to retroactively adjust design processes.

Table 5. Cross-Group Comparisons

Cross-Group Similarities:

The list below summarizes similarities that span the three participating organizations.

Design thinking is **new** to most participants

All participants deeply **value the DT process** thus far

All groups include a **diverse set of stakeholders** with different levels of power, experience, and access

Cross-Group Differences:

The categories below summarize the differences between the three participating design teams and the leadership / facilitator group. They represent divergent identities and experiences across age, socioeconomic status, race, education, citizenship, relationships, etc. They possess vastly different capacities and levels of investment in the initiative.

	After school program	Food distribution & ministry non-profit	Nonprofit leaders collective	Healthcare organization	Consulting firm
Scale & focus	Organization & Town	Neighborhood housing & relationship-building	County-wide collaboration for systems change	Infusing institutional culture	Facilitating & building capacities
Social identities	Fairly diverse	Biggest divides between social identities	Social identities aligned	Represent privileged social identities	Represent privileged social identities
Energy	Captured audience	Variable attention & capacities	Overly extended participants	Time/energy commitments vary	Time/energy commitments vary
Participation	High attrition	Most challenged by recruitment & retention	No attrition	Strong commitment	Strong commitment
Capacity	Idea centric	Lowest capacity	High capacity	High capacity	Highest capacity
Motivation	Less initial vision & intrinsic motivation	Lack of clarity lessens motivation	Strong intrinsic motivation	Strong intrinsic & extrinsic motivation	Strong intrinsic & extrinsic motivation
Power	Less power	Power imbalance	More power & networks	Positional power	Expertise power
Resources	Lower levels	Varying levels	Access to resources	Highest level	High level

Design materials & guidance	High facilitation intervention, challenged by accountability	Physical, high facilitation intervention	Hybrid, less guidance	Mentorship to build skills & knowledge	building skills & knowledge to facilitate across diverse groups
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Context-responsive, caring, confident facilitation was essential. All levels of participants indicated that flexible, caring, and confident facilitation was critical for generating trust, sustaining motivation, yielding decisions on actionable next steps, and transforming mental models. In addition, we found that tangible co-creation within workshops and constant adaptation between sessions and teams were essential. These findings are explored in more detail below

Participants built relationships and capacities through co-creation. At all levels, participants consistently articulated that the co-creation of physical artifacts (e.g., interview guides, design templates, etc.) was particularly meaningful, memorable, and transferable. As one participant noted, it was valuable to “end each session with a physical, tangible task for what we are going to do before the next meeting.” When asked about the most valuable aspects of the workshop process, interviewees overwhelmingly pointed to the relational co-creation of artifacts like the introductory gift-making activity, Miro brainstorming materials, interview guides, and the visualization activities in their ideation sessions. A workshop facilitator with years of experience emphasized that, “real transformation happens through relationship-building and capacity-building... the making is what gets people excited and engaged and builds their trust.”

Constant adaptation is necessary for a successful process. Observation of workshops, planning documents, and interviews indicated that adaptation to participants’ situated goals and capacities is important to the process as a whole. Workshop facilitators continually adapted planned activities to meet the emergent needs of each design team and set of participants. Similarly, multiple participants noted that they had to adapt to the majority group opinion when options were discussed or decisions were made. Specific adaptations ranged from shifting timelines, tools, materials, language, and expectations to being willing to park an idea or goal in deference to the will of the group.

There was strong evidence of both behavior and mindset changes across participants’ professional, personal, and civic lives. A design team member and nonprofit leader said, “This has been life changing,” while an initiative leader said they have been “absolutely transformed!” One of the workshop facilitators noted that they’ve “learned to be there and be present...to flow...and follow my instincts.” As summarized in Table 5 below, behaviour and mindset changes centered around: (1) seeking feedback by learning how to ask good questions and capture responses, (2) building mutually beneficial relationships while being respectful of differences, and (3) shifting mindsets through generating and reframing imaginaries.



TABLE 5: Behaviour and Mindset Changes

Seeking feedback & asking “good questions”	
<i>Design team member</i>	Community activist (agency volunteer): “I find that sometimes a lot of organizations think we can do this and it won't take that much work, but we don't dig deeper, we just give the thing and don't ask the question, so I think that's been the most helpful... it's like the discipline of ‘after question asking, ask some more questions.’”
<i>Design team member</i>	Agency director: “I am learning how to capture feedback from the parents I am supporting... You have to get feedback when and how you can.”
<i>Design team member</i>	Agency staff: "I am asking questions of [food pantry] visitors... asking about their own experiences. Seeking their perspective. With DT it takes that work... it goes deeper. Design thinking gets you to listen to the people you are trying to serve.”
<i>Design team member</i>	Youth participant (agency client): “I used to be shy about asking questions, but now that I'm in design thinking I'm never afraid to ask anything.”
Building relationships & navigating differences openly	
<i>Design team member</i>	Community NGO leader (agency client): “I was able to understand that not everyone felt the way I did, but I was able to voice how I felt and It was managed very well. Others were able to give me their opinion... and I was able to understand where they are coming from. I was not upset, everyone did not feel like me, but I needed to understand where they are coming from.”
<i>Design team member</i>	Community religious leader (agency director): “This has been a huge stepping stone for building relationships with the neighborhood.”
<i>Design team member</i>	Community activist (agency volunteer): "This puts us in a place to come up with an idea and revise it without being attacked. It was very comfortable.”

Design team member **Agency director:** "I was outnumbered because people felt like representation was the bigger issue... Even though it did not go in my favor, I can understand... why... We were all easy to talk to. I do not know what could have been done better... We were all able to communicate and everyone was sensible to what was the best route."

Generating & reframing imaginaries

Healthcare Organization **Initiative leader:** "I really appreciate the emphasis placed on mindsets and it's something I am working towards with being open to others...I've been able to practice those mindsets a lot more at home and in my own life."

Design team member **Community activist (agency volunteer):** "So I think the thing that has been the most helpful is the imagination piece and then, after having these ideas about what it could be, the refinement... the way that we work on kind of refining the imagination."

Design team member **Agency staff:** "I understand a little bit more about why they live as they do. At first you think it's them and then you can see there are landlords hindering these folks from progressing. You do not understand how important understanding their situation is until you go through this process."

Analysis of interviews also indicates the more diverse the teams are, the more they struggle to ensure equitable contributions across the design process.

5. Challenges & Recommendations

5.1 Challenges

The challenges that arose in Phase One overwhelmingly resulted from a few key factors, described below. Generating relationships, building capacities, and sparking sustainable innovation that genuinely responds to situated needs takes more time and resources than most DT initiatives and grants provide (Goodluck et al., 2020).

Designing around implicit power-dynamics

Initiative leaders and workshop facilitators expressed tentative concerns that design team members with positional power at their organization held undue influence within the first phase of the design process. The grant manager noted that "initiative leaders are more articulate about what should happen than the people living in the community and this may be 'inhibiting' contributions." More diverse design teams dealt with a larger range of challenges on this front. This manifested as a designing-for in place of designing-with approach, where those with privilege might sway outcomes without genuinely holding space for other participants: "Behavioral patterns of...speaking on behalf of other people...This has

happened a number of times." Challenges were noted as a form of resistance and as unintended overstepping within the design process. Resistance was felt in the form of hesitancy about getting out and recruiting community members with lived experience. An agency director noted that "there is still a resistance to going into that neighborhood."

Recruitment, attrition, memory loss, and accountability

Initiative leaders and nonprofit agency directors struggled to recruit and retain design team participants with historically marginalized identities. In addition, participants struggled to remember activities, key ideas, and team-generated future pathways. Many struggled to articulate overarching themes emerging across groups, instead privileging their own prioritized ideas. In addition, observational research, interviews, and material analysis indicate that between-meeting tasks were often not robustly completed. Many participants did not fully engage members of the wider community in activities intended to ensure that community perspectives were elicited.

Designing for divergent capacities & social identities

Workshop facilitators consistently noted that their role varied drastically because of the differing capacities, identities, and relationships within the participating teams. For one team they invested in facilitating approximately 30% of the process and refrained from offering any ideation or theming suggestions, whereas for other teams they facilitated over 70% of the design process and offered content suggestions. Interviews revealed that the workshop facilitators felt this was necessary in order to support next steps. One facilitator even noted that, "Some of these groups would not have passed our (design firm's) capacity gauge in prior projects... As a facilitator I am doing content support and I would often not do this." Another said that "there is a lot of handholding... they need a lot of help coming up with questions and insights." The two initiative leaders also expressed concern "that the input provided may not represent all perspectives."

Nowhere to go but down!

The Initiative Engagement Survey revealed design team members were high in enthusiasm and confident of their abilities to contribute at the time of the Kickoff event. Given this and prior research (Lake et al., 2020), we speculate enthusiasm and motivation are likely to decline somewhat as the initiative unfolds and participants move to identifying and prototyping interventions in Phase 2 and 3.

5.2 Recommendations

Given our findings and recent research by others on DT (Liedtka, et. al., 2020; Rittner, 2020; Vink, J., Nilsson, Freitas, & Prakash, 2021), we offer the following four recommendations:

1. **Frame power, place, and positionality:** We recommend initiative leaders and workshop facilitators work with nonprofit agency directors to explore the significance of power and positionality within their ongoing roles as organizers, funders, and project managers. Early and intentional efforts to highlight how power and positionality can restrict democratic design processes, and can support more inclusive and participatory engagement across an initiative. A number of flexible methods, like the History and Healing activity and the Acknowledging and Dismantling Power Constructs processes in the *Equity-Centered Field Guide*, now exist for engaging in such practices (Anaissie et al., 2020; Aye, 2017; Creative Reaction Lab, 2020).
2. **Relationship-rich design:** The greater the divides between the social identities and roles of participants, the more energy and resources are needed to recruit and retain participants, build resilient relationships, and move towards inclusive and equitable codesign opportunities. Efforts to “sprint” through or “scale up” innovation quickly should be critically interrogated; inclusive, situated DT practices engaging with and across diverse communities require relationship-rich approaches and significant trust building. Given these challenges, we recommend integrating more time and resources to recruiting and retaining a diverse, robust group of participants. In turn, this may generate trust, establish commitment, and sustain shared buy-in.
3. **Long-term, flexible resource allocation:** In order to support visionary boundary spanners and system-level change, time, resources, and opportunities for strategizing across design teams should be extended. Develop and sustain processes and resources for leadership goals across design teams, which will support the potential for sustainable system-level change. Initiative leaders, for instance, have leveraged the cohort model of this initiative via monthly meetings in order to support cross-team insights and strategizing for inter- and intra-team learnings, capacity building, and resilience.
4. **Create consistent visual validation & small-win prototypes:** We found that many participants were eager to see tangible prototypes launch and uneasy about the potential direction of next steps. Reserving time and space for prototyping until later in an initiative may lower motivation and commitment. We also found evidence of forgetting and apathy along with a lack of accountability for completing tasks between monthly workshops. We recommend initiatives consider iteration and accountability mechanisms for sustaining momentum and deepening relationships between formal workshops and meetings. Given additional findings that indicate the most memorable and motivational aspects of the process emerged from collaborative making activities, we recommend DT initiatives integrate more co-making opportunities and create mechanisms for early prototyping, testing, and small wins (Liedtka et al., 2020).

6. Limitations

The current study captures only the first phase of a two-year ongoing initiative. The sample size is small and the participants are from one county in the southeastern United States; therefore, the results have limited generalizability. The Initiative Engagement Survey produced ceiling effects for a majority of the items, which also limits the possibility of detecting positive growth in the future using this instrument.

7. Conclusion

Phase One of this initiative reinforces prior conclusions that “DT activities set the stage for... personal transformation” (Liedtka et al., 2020, p. 15). It also reinforces findings that valuable and viable innovations designed to address complex systems change are incredibly resource intensive, require immense flexibility and time investment, and must respond to the situated desires, strengths, and needs of diverse, intersecting communities. This is certainly true for community-engaged public health initiatives tied to large healthcare systems. For instance, while we found substantive evidence of mindset and behavioural change amongst participants, phase three and post-initiative interviews will clarify whether this initiative will yield tangible and valuable service innovations across the organizations and communities involved.

The initiative has been consistently challenged by the recruitment and retention of participants from historically marginalized communities,² the complexity of designing and adapting materials for a diverse array of participants and partner organizations, and the need to avoid reinforcing entrenched hierarchical power dynamics between privileged initiative leaders, workshop facilitators, agency directors and staff, and underserved client participants.

Conversely, the initiative is only now entering its second phase and has resoundingly reinforced prior findings that “the transformational power of design thinking lies not in what it encourages us to *do*, but in who it encourages us to *become*” (Liedtka et al., 2020, p. 4). Participants at all levels indicate the initiative has been valuable in several ways: supporting the development of essential DT skills like empathetic listening, ideation, iteration, and the building of relationships across differences. We recommend similar initiatives begin through visualizing the positionality and power of all participants, codesigning a participatory approach that is situated within place-based contexts; investing resources and time in support of relational-iterative making; developing strategies for supporting robust participant engagement; and utilizing activities that validate concepts and create earlier opportunities for low stakes prototyping.

² For instance, some design team members did not have access to wifi, telephones, or reliable transportation. Other design team members experienced life transitions (career changes, relocations, etc.). Others had conflicting time commitments and obligations at various points across the initiative.

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8. References

- Abookire, S., Plover, C., Frasso, R., & Ku, B. (2020), Health design thinking: An innovative approach in public health to defining problems and finding solutions. *Frontiers in Public Health*, 8(459), 1-6.
- Acklin, C. (2013). Design Management Absorption Model – A framework to describe and measure the absorption process of design knowledge by SMEs with little or no prior design experience. *Creativity and Innovation Management*, 22(2), 147-160.
- Akama, Y., Hagen, P., & Whaanga-Schollum, D. (2019). Problematizing replicable design to practice respectful, reciprocal, and relational co-designing with indigenous people. *Design and Culture*, 11(1), 59-84. <https://doi.org/10.1080/17547075.2019.1571306>
- Altman, M., Huang, T.T., & Breland, J.Y. (2018). Design thinking in health care. *Preventing Chronic Disease*, 15(17), 1-13. <https://doi.org/10.5888/pcd15.180128>
- Anaissie, T., Cary, V., Cliffoed, D., Malarkey, T., & Wise, S. (2020). *Liberatory design: Your toolkit to design for equity, version 1.0* [card deck]. Stanford K12 Lab Network. <https://dschool.stanford.edu/s/Liberatory-Design-Cards.pdf>
- Ansari, A. (2016). Politics and method. *Modes of Criticism*. Retrieved on July 25, 2016. <https://modesofcriticism.org/politics-method/>
- Aye, G. (2017). Design education's big gap: Understanding the role of power. *Medium*, June 2, 2017. <https://medium.com/greater-good-studio/design-educations-big-gap-understanding-the-role-of-power-1ee1756b7f08>
- Benson, J. & Dresdow, S. (2015). Design for thinking: Engagement in an innovation project. *Decision Sciences Journal of Innovative Education*, 13(3), 377–410. <https://doi.org/10.1111/dsji.12069>
- Borja de Mozota, B. (2011, May). Designers skills in organizations. The value of designers' skills in the 21st century. In E. Bohemia, B. Borja de Mozota, & L. Collina (Eds.), *Proceedings of the 1st International Symposium for Design Education Researchers* (pp. 17-40). Paris: CUMULUS Association and DRS.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101
- Buchanan, R. & Margolin, V. (1995). *Discovering Design: Explorations in Design Studies*. Chicago: University of Chicago Press.
- Burns, D. (2014b). Systemic action research: Changing system dynamics to support sustainable change. *Action Research*, 12(1), 3–18.
- Costanza-Chock, S. (2020). *Design Justice: Community-Led Practices to Build the Worlds We Need*. Cambridge: MIT Press.
- Creative Reaction Lab, (2020). *Equity-Centered Community Design Field Guide*. www.creativereactionlab.com
- Creswell, J. W., & Clark, V. L. P. (2018). *Designing and Conducting Mixed Methods Research*. Thousand Oaks, CA: Sage.
- Cross, N. (2011). *Design Thinking: Understanding How Designers Think and Work*. London: Bloomsbury.

- Drayton, B. (2019). *The new reality: Living in a changemaker world requires a new framework for thinking and acting*. Retrieved on Nov. 15, 2021. <https://www.ashoka.org/en-us/story/new-reality>
- Duan, Z., Vink, J., & Clatworthy, S. (2020). Moving towards plurality: Unpacking the role of service design in relation to culture. In *the Proceedings of the ServDes 2020 Conference - Tensions, Paradox and Plurality*, 1-14. [https://servdes2020.s3.amazonaws.com/uploads/event/paper/31/55_Zhipeng_Vink_Clatworthy SP.pdf](https://servdes2020.s3.amazonaws.com/uploads/event/paper/31/55_Zhipeng_Vink_Clatworthy_SP.pdf)
- Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Durham: Duke University Press.
- Fonseca Braga, M., Filho, E.R., Guimarães Pereira, H.G., Tseklevs, E., Mendonça, R.M. (2021). Community-led design capabilities during the COVID-19 pandemic and beyond. In Di Lucchio, L., Imbesi, L., Giambattista, A., & Malakuczi, V. (Eds.), *Design Culture(s), Cumulus Conference Proceedings*, 7(2), 2165-2181.
- Forrester Research, Inc. (2018). *The Total Economic Impact of IBM's Design Thinking Practice*. <https://www.ibm.com/downloads/cas/Z4WBDR8Q>
- Fry, T. (2017) Design for/by "The Global South." *Design Philosophy Papers*, 15(1), 3-37.
- Goodluck, M., Kranias, G., & Fursoya, J. (2020). Optimizing partner projects for systems change: A toolkit for funders and partners. *Health Nexus-Nexus Santé*.
- Grimes, J., Vink, J., Harvainen, J., & Birgit, M. (April, 2021). Service design and systems thinking. *Touchpoint: The Journal of Service Design*, 12(2), 10.
- Huang, T. T., Aitken, J., Ferris, E., & Cohen, N. (2018). Design thinking to improve implementation of public health interventions: An exploratory case study on enhancing park use. *Design for Health*, 2(2), 236-252.
- Jamal, T., Kircher, J., & Donaldson, J. P. (2021). Re-visiting design thinking for learning and practice: Critical pedagogy, conative empathy. *Sustainability*, 13(2), 964.
- Jones, P. (2013). *Design for Care: Innovating Healthcare Experience*. New York: Rosenfeld Media.
- Ku, B., & Lupton, E. (2020). *Health Design Thinking: Creating Products and Services for Better Health*. Cambridge: The MIT Press.
- Junginger, S. (2014). Towards policy-making as designing: Policy-making beyond problem-solving and decision-making. In C. Bason (Ed.), *Design for Policy* (pp. 57-69). Farnham, UK: Gower Publishing.
- Kania, J., Kramer, M., & Senge, P. (2018). The water of systems of change. *Reimagining Social Change*. Retrieved from <http://efc.issuelab.org/resources/30855/30855.pdf>
- Lake, D., Ricco, M., & Whipps, J. (2018). DT accelerated leadership: Transforming self, transforming community. *The Journal of General Education*, 65(34), 159–177.
- Lake, D., Flannery, K., & Kearns, M. (2021). A cross-disciplines and cross-sector mixed-methods examination of design thinking practices and outcomes. *Innovative Higher Education* 46(3), 337-356.
- Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press.
- Liedtka, J., & Bahr, K. J. (2019). *Assessing design thinking's impact: Report on the development of a new instrument* (No. 19-13). Darden Working Paper Series, University of Virginia, Darden Graduate School of Business, Charlottesville, VA.

- Liedtka, J., Hold, K., & Eldridge, J. (2020), *The innovator's journey: How design shapes us as we shape designs*, Darden Working Paper Series, University of Virginia, Darden Graduate School of Business, Charlottesville, VA.
- Michlewski, K. (2008). Uncovering design attitude: Inside the culture of designers. *Organization Studies*, 29(3), 373-392. <https://doi.org/10.1177/0170840607088019>
- Morelli, N., Götzen, A. de, & Simeone, L. (2021). *Service Design Capabilities*. Cham, Switzerland: Springer.
- Molloy, S. (2018). *Innovation Labs in Healthcare: A Review of Design Labs as a Model for Healthcare Innovation*. OCAD University. Retrieved on Oct. 30, 2021. <http://openresearch.ocadu.ca/id/eprint/2364>
- Neuhauser, L. & Kreps, G. L. (2014). Integrating design science theory and methods to improve the development and eEvaluation of health communication programs. *Journal of Health Communication*, 19(12), 1460-1471. <https://doi.org/10.1080/10810730.2014.954081>
- Neuhauser L. (2017). Integrating participatory design and health literacy to improve research and interventions. *Information Services & Use*, 37(2), 153–76. doi: 10.3233/ISU-170829
- Oh, A. (2018). Design Thinking and community-based participatory research for implementation science. *Dispatches From Innovation Science at NCI*, Sept. 2018.
- Rittner, J. (2020). Design education reform: Modeling equity and inclusion in teaching and learning. *Design Management Review*, 31(3), 12-22.
- Royalty, A., Oishi, L.N., & Roth, B. (2014). Acting with creative confidence: Developing a creative agency assessment tool. In L. Leifer, H. Plattner, & C. Meinel (Eds.), *Design thinking Research: Understanding Innovation* (pp. 79–96). Cham: Springer.
- Schar, M., Gilmartin, S. K., Harris, A., Rieken, B., & Sheppard, S. (2017). Innovation self-efficacy: A very brief measure for engineering students. *Proceedings of the ASEE Annual Conference & Exposition*, 14766–14795.
- Sanoff, H. (2007). Multiple views of participatory design. *International Journal of Architectural Research*, 2(1), 57-69.
- Schon, D. (1983). *The Reflective Practitioner: How Professionals Think In Action*. New York: Basic Books.
- Tsekleves, E., & Cooper, R. (2017). Emerging trends and the way forward in design in healthcare: An expert's perspective. *The Design Journal*, 20(1), 2258–2272.
- Vink, J., Edvardsson, B., Wetter-Edman, K., & Tronvoll, B. (2019). Reshaping mental models—enabling innovation through service design. *Journal of Service Management*, 31(1), 75-104.
- Vink, J. (2021). Designing for plurality in democracy by building reflexivity: Coss dialogue paper. *Annual Meeting of the Society of the Advancement of American Philosophy*.
- Vink, J., & Koskela-Huotari, K. (2021). Building reflexivity using service design methods. *Journal of Service Research*, 1-19. <https://doi.org/10.1177/10946705211035004>
- Vink, J., Nilsson, D., Freitas, T., & Prakash, S. (2021). Attempting to Resist Ontological Occupation when Designing for Scale in Healthcare. *Nordes 2021: Matters of Scale*, 9, 292-301.
- Wagoner., M. (2017). *Technology Against Technocracy: Toward Design Strategies for Critical Community Technology*. [Graduate Thesis, Massachusetts Institute of Technology, Cambridge]. DSpace@MIT

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