

The Pennsylvania State University
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**SOLIDARITY NOT CHARITY! EMPOWERING LOCAL
COMMUNITIES FOR DISASTER RELIEF DURING COVID-19
THROUGH GRASSROOTS SUPPORT**

A Dissertation in
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by
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Abstract

The COVID-19 pandemic brought wide-ranging, unanticipated societal changes as communities rushed to slow the spread of the novel coronavirus. In response, mutual aid groups bloomed online across the United States to fill in the gaps in social services and help local communities cope with infrastructural breakdowns. Unlike many previous disasters, the *long-haul* nature of COVID-19 necessitates sustained disaster relief efforts. Developing an in-depth understanding of how online mutual aid mobilized community-based disaster relief to support the needs of local communities in this disaster can provide the crucial groundwork for community resilience and preparedness as this pandemic evolves and during future disasters.

This dissertation presents a series of empirical studies which were conducted during the first year of COVID-19, i.e., March 2020 to March 2021. Firstly, I teased out significant design features that support the facilitation of *mutual aid* on online platforms through a scenario-based claims analysis of the two most widely used platforms for mutual aid. From this, platforms that are appropriated for disaster relief should support aid request standardization and balanced visibility of requests alongside user validation and a means for interactivity. Next, an interview study with online mutual aid group administrators outlines the ways in which local online mutual aid groups facilitated disaster relief and how they developed and maintained over the course of the first year of COVID-19. This study identified immediate needs relief, long-term initiatives aimed at reducing chronic needs, and justice-centered organizing as aspects of mutual aid which supported localized disaster relief; it also demonstrated how groups re-focused their efforts towards addressing the most pressing community needs. Next, all of the groups mentioned food insecurity as a chronic community need, which prompted an analysis of the ways that online mutual aid groups facilitated tangible food aid. The findings from this analysis revealed how groups contributed immediate food relief as well as laid the groundwork for long-term food security, with implications for

community resilience. Finally, a content analysis of the posts and comments in a care-mongering group outlines how local community members innovated and developed care-mongering practices online, and how such practices might contribute to community collective efficacy and community resilience. Together, the insights gained from these studies can support communities to collectively be more prepared for future long-haul disasters than they were with COVID-19.

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Dedication

For my mother, JoAnne Knearem (1954-2013).

Chapter 1

Introduction

The COVID-19 global pandemic (henceforth COVID-19) was announced on March 11th, 2020 (Organization, 2020) and has brought unprecedented hardship across the world. As of early November 2021 in the United States, there were over 48 million cases and at least 780,000 deaths attributed to COVID-19 (Worldometer, 2021). In the initial months of the pandemic, unemployment skyrocketed, reaching highs greater than those of the Great Depression (Blustein et al., 2020), and the country grappled with the effects of economic recession (Nicola et al., 2020). Schools were closed or forced to adapt to virtual learning, which put millions of children and families at risk of learning loss (Hoffman & Miller, 2020). As time progressed, local government and non-profit resources were stretched increasingly thin, which made it difficult for people experiencing the secondary impacts of COVID-19 (e.g., financial, employment, housing, childcare, healthcare) (Quinn & Laws, 2020) to access the resources that they need. As of this writing in late November, 2021, the United States is still under a state of emergency due to the COVID-19 pandemic (Becerra, 2021), which has been on-going for over a year and a half. The arrival of new variants such as Delta and Delta Plus has made it unclear when the pandemic will end. It is apparent that COVID-19 is a long-haul disaster which necessitates sustained relief efforts at the community-level in tandem with governmental efforts to support people who were adversely affected by the virus or pandemic-related disruptions to daily life in the face of the ongoing disaster both now and for years to come.

Previously, researchers working in Human-computer Interaction (HCI) and Cri-

sis Informatics explored citizen coordination of disaster relief activities through social media in real-time and in the aftermath of previous disasters (e.g., (Dai-ley, Robinson, & Starbird, 2016; Starbird et al., 2015; Sutton, Palen, & Shklovski, 2008), and how these efforts were able to fill in gaps in aid when government agencies were unprepared for or otherwise could not provide relief (M. B. LaLone, 2012). For instance, citizens supplied shelter, donations, and manual labor to help others in the aftermath of short-term disasters such as hurricanes, tsunamis, and wildfires (Macias, Hilyard, & Freimuth, 2009; Palen, Hiltz, & Liu, 2007; Shklovski, Palen, & Sutton, 2008). They supported each other’s mental health and well-being through sharing experiences, discussing concerns, grieving together, and expressing sympathy towards others’ situations (Vicary & Fraley, 2010; Wickes, Zahnow, Taylor, & Piquero, 2015). However, the active disaster periods of common disasters (e.g., hurricanes, earthquakes, terrorism) were relatively short-lived compared to a global pandemic, and empirical studies that investigate citizen-based disaster relief during a long-haul disaster are just emerging (e.g., (Jo, Knearem, Tsai, & Carroll, 2021; Soden & Owen, 2021), largely due to the recency of COVID-19 and the rarity of previous disasters with similar spatial and temporal spans. Additionally, the aid provided to affected citizens by government agencies is likely to be insufficient over a long period of time, especially as governmental pandemic-related social benefits end, which would further increase the importance of community-based efforts.

To combat the detrimental effects of the secondary impacts of COVID-19 as well as other restrictions on communities in the United States, such as social distancing, aimed at the prevention of the spread of the virus, online platforms (e.g., social media, Google Drive) were widely appropriated by local citizens to facilitate *mutual aid*. This is in line with previous disasters, where grassroots groups configured familiar tools to address the needs of their communities, rather than creating new technologies or applications (Soden & Lord, 2018). While there is no universally agreed upon definition of mutual aid, as it comprises a multitude of community self-help activities both during disasters and in ongoing struggles for self-determination (Soden & Owen, 2021), I will consider it as the voluntary generalized exchange of resources and services for mutual benefit (Spade, 2020a) where people leverage local community networks to give what they can and get what they need (Shepard, 2014). In mutual aid groups, members exchange information, ask for various kinds

of help, offer to provide help for others, and engage in conversations and initiatives around building justice into their communities (Chevéé, 2021; Knearem, Jo, Tsai, & Carroll, 2021; Soden & Lord, 2018). Participation is open to anyone in the community, however, due to the social distancing restrictions and other stay-at-home orders during the duration of the studies in this dissertation, the role of social media in mediating interactions has become crucial to the delivery of community-based disaster relief. Mutual aid emphasizes cooperation over competition, which Kropotkin (2012) asserted as the driving mechanism behind evolution and the fundamental basis of life, in direct contrast to the then-popular theory of Darwinism, which championed individualism through natural selection. Mutual aid has been practiced extensively in marginalized communities in the United States, e.g., Black communities, working-class neighborhoods, migrant groups, and LGBT communities (Hernández-Plaza, Alonso-Morillejo, & Pozo-Muñoz, 2006; Nembhard, 2014; Williams & Windebank, 2000), and has served a key role in providing community-based disaster relief during previous disasters such as Hurricane Katrina in 2005 and Hurricane Sandy in 2012 (Spade, 2020a).

The COVID-19 pandemic caught communities across the world off-guard; most places were ill-prepared to handle a biological disaster and in the initial months following WHO's declaration of a global pandemic, uncertainty around the quickly changing trajectory of the virus led to chaos as panic-buying, mass layoffs and other social disruptions took hold. During COVID-19 infrastructural breakdowns such as disruptions to the supply chain and over-capacity in intensive care units at hospitals frequently occurred, straining all available resources. Mutual aid groups bloomed online across the United States to fill in the gaps in services and help local communities cope with infrastructural breakdowns. Studying how mutual aid facilitated disaster relief, as well as the successes and challenges around delivering aid online, in particular during the initial year of the pandemic when uncertainty was high, is vital to our understanding of how mutual aid as community-based disaster relief can be effectively mobilized to support the needs of local communities as this pandemic evolves and in the event that another pandemic occurs in the future. The insights gained from understanding the strategies for disaster relief that were employed in online mutual aid groups can support us to collectively be more prepared for future long-haul disasters than we were with COVID-19.

In this dissertation, I describe three empirical research studies on community-based disaster relief, i.e., mutual aid and care-mongering, during COVID-19 that I have led during my Ph.D. For each study, I carefully chose methods to draw out the necessary information to answer an aspect of the following core research question:

How have online groups facilitated disaster relief in local geographic communities in the United States during the first year of the COVID-19 pandemic?

Based on the findings from these studies, I present the various ways in which online mutual aid facilitated disaster relief and provide design implications for augmenting community-based disaster relief in the geographic local community context during this and future disasters. Firstly, to gain an initial understanding of how online aid requests were made and offers of support were delivered, I developed a scenario-based claims analysis of the two most widely-used online platforms by mutual aid groups which answers the associated research question *What are the benefits and challenges of using Facebook Groups and Google Drive with respect to facilitating mutual aid?* This analysis pointed towards the need to gain a more detailed understanding of member interactions and aid-related initiatives that took place in online mutual aid groups, which led me to conduct the interview study. I then interviewed online mutual aid group administrators to understand the initiatives that their groups engaged in and the impact of the groups on various aspects of the local community, addressing the research questions *How have online mutual aid groups adapted to the changing circumstances of the long-haul pandemic?* and *How are local community members facilitating food aid through online mutual aid during a global pandemic?* Finally, I was curious about sub-set of mutual aid which first arose during COVID-19 known as “care-mongering” (i.e., acts of kindness), and the potential for care-mongering to support community collective efficacy (CCE), which can be vital to community resilience during a long-haul disaster. I conducted a thematic analysis of posts in a pandemic-relief Facebook care-mongering group to answer the research questions *In what ways do local communities use online care-mongering groups to practice care-mongering during COVID-19?* and *How can this practice relate to CCE and*

community resilience?. These questions and more will be explored in full detail in subsequent chapters.

The findings from this research contribute to the literature in HCI and Crisis Informatics in the following ways. Firstly, these empirical studies bring visibility to the importance of socio-technical systems as key enablers of mutual aid for community-based disaster relief during disasters where in-person organizing is ill-advised through showing how the online groups enable a variety of forms of efficient and timely aid throughout a long-haul crisis. Next, online mutual aid groups are a core facet of community-based care not only through generalized exchange of immediate and long-term aid, but also as facilitators of social change that work to build justice into their communities. Finally, care-mongering groups on social media facilitated acts of kindness such as showing appreciation for helpers and supporting one another's needs, which can bring visibility to community beliefs (i.e., CCE) and capacities (i.e., resilience), both of which are necessary for vibrant and resilient local communities during a long-haul disaster.

1.0.1 Researcher Positionality

I am an American HCI scholar with interests in community informatics and crisis informatics, specifically alternative forms of community care, e.g., co-production, timebanking, and mutual aid. During the COVID-19 pandemic, while I was not part of a mutual aid group, I engaged in mutual aid in my local community of State College, Pennsylvania. I have a longstanding interest in social activism and am a proponent of community-based approaches to addressing the issues that marginalize people or otherwise directly impact local citizens.

1.1 Dissertation Overview

In the balance of this dissertation, I explore how online community-based disaster relief for COVID-19 is facilitated through mutual aid, the various initiatives that online groups support in local communities, as well as provide insights for social media design features to further support community-based disaster relief activities. I utilize first-person nomenclature in this dissertation outside of the

empirical papers that detail the results of the studies introduced in Chapters 3-6. These chapters are based on academic papers which I've authored alongside my colleagues at Pennsylvania State University, thereby using "we" when describing these empirical studies reflects the collaborative nature of the work. In Chapter 2, I present a background on the COVID-19 pandemic, give the definition of and background on my use of the word *community*, and review relevant literatures in HCI and crisis informatics on the two types of disaster relief, social media's role in facilitating relief during past disasters, and social movements for community-based disaster relief (i.e., mutual aid and care-mongering).

Chapter 3 introduces the scenario-based claims analysis of three key user roles in mutual aid on the top two platforms that were adopted by mutual aid groups during COVID-19, as well as suggestions for the design of ICT to further support mutual aid during disasters, based on Knearem, Jo, Tsai, and Carroll (2021). Chapter 4 presents an interview study with online mutual aid group organizers, which focuses on immediate and long term needs, the coproduction of aid, as well as longer-term community activities related to the alleviation of chronic community issues. This chapter draws from the unpublished manuscript Knearem, Jo, and Carroll (2021b). Chapter 5 contains a subset of the interview data collected in Chapter 4 related to food aid, and presents in detail the facilitation of food aid through online mutual aid groups, based on Knearem, Jo, and Carroll (2021a). Chapter 6 presents the work detailed in Knearem, Jo, and Carroll (2022), which brings visibility to the importance of care-mongering on community beliefs and capacities and shows how the practice of care-mongering on socio-technical systems can contribute to increased community resilience during crises. Finally, Chapter 7 contains the overarching theoretical and practical implications of the findings presented in Chapters 3-6, limitations of this research, and opportunities for future work.

Literature Review

In this Chapter, I provide a brief background on the COVID-19 pandemic, define my usage of the term *local community*, describe community collective efficacy (CCE) and community resilience, examine how social media has been used in past disasters for citizen-based disaster relief, and describe the mutual aid movement and associated care-mongering movement. Following this is a synthesis of the literature and how my studies contribute to the body of work in crisis informatics and HCI.

2.1 Background on COVID-19

On March 11, 2020, the World Health Organization (WHO) officially declared COVID-19 as a global pandemic (Organization, 2020). As the virus spread across the world, the COVID-19 pandemic (hereforth COVID-19) became a global disaster unprecedented in modern times in terms of geographical and temporal scale. It has diffused to all but five countries that have not reported a case (Geneva: World Health Organization, 2020), and has become increasingly difficult to contain with the emergence of new, more contagious variants. Pandemics are categorized as biological disasters, which are relatively uncommon compared to other types of disasters; from 1990 to 2005, only 8% of all disasters were biological, while 50% were meteorological, 30% were technical, and 12% were geological (Eshghi & Larson, 2008). COVID-19 also lasted much longer than the other disasters that most people in this generation have experienced; the average duration of all disasters

that occurred between 1980 and 2019 was 40 days, while human-induced disasters (i.e., terrorism) lasted for around one day (Ludvigson, Ma, & Ng, 2020). Most categories of disasters are geographically constrained; for example, hurricanes affect areas directly in their path or earthquakes affect the areas around the epicenter. As of this writing in late 2021, COVID-19 has persisted for over a year and a half. It is unclear when the pandemic will end or whether humanity will have to live alongside the virus, as well as the numerous societal changes it incurred.

Compared to previous epidemics such as SARS, MERS, and Ebola, the COVID-19 outbreak is also exceptional in terms of its severity. As of late November 2021, at least 260 million people worldwide have been infected (Geneva: World Health Organization, 2020), while SARS numbered 8,422 cases, MERS numbered 2,502 cases, and Ebola numbered around 30,000 cases (Van Damme et al., 2020). Months after the initial outbreak, the accuracy of many diagnostic tests varied widely, which could have resulted in heightened transmission (Olalekan et al., 2020) or missed cases. Current research suggests that 30% of known cases were asymptomatic (Van Damme et al., 2020); and that vaccines and treatment were underdeveloped to contain the spread of the virus (Wu, Chen, & Chan, 2020). Common social activities that were low-risk to personal health before the pandemic such as religious services, attending school, and dining out have been identified as routes for viral transmission (Fisher et al., 2020). As such, many people changed their behavior to avoid sources of transmission, and must keep tabs on ever-changing safety regulations and preventative measures.

In the United States, unemployment skyrocketed, reaching highs greater than those of the Great Depression (Blustein et al., 2020), and the country grappled with the effects of economic recession (Nicola et al., 2020). Schools were closed or forced to adapt to virtual learning, which put millions of children and families at risk of learning loss (Hoffman & Miller, 2020), while nationwide shortages and uncertainty around the availability of personal protective equipment (Cohen & van der Meulen Rodgers, 2020), foodstuff and other basic necessities caused people to engage in hoarding and other panic-buying behaviors (Loxton et al., 2020). The severity of the spread of COVID-19 differed by locality, based on demographic variables such as the average age of residents or population density (Van Damme et al., 2020). For instance, in the United States, New York experienced its first wave

in April and May of 2020 and the situation stabilized in Summer 2020, around the time when Texas and Florida experienced their first wave. By October 31, 2020, New York reported 510,899 cumulative cases, Texas reported 900,596, and Florida reported 791,997 cases (for Disease Control & Prevention, 2021). The severity of the spread resulted in differing levels of socio-economic effects; for instance, places with a high case count were more likely to have rigid economic and/or travel restrictions. Moreover, restrictions fluctuated frequently in response to confirmed cases and new scientific discoveries (e.g., the effectiveness of mask-wearing, the possibility of virus transmission from asymptomatic cases, and vaccine availability).

2.2 Defining Community

Community is a broad term with many meanings; over 100 have been identified by Lyon in *The Community in Urban Society* (Lyon & Driskell, 2011). For our purposes, we define *community* as geographic community, such as a city or neighborhood. Communities are about relationships between the people in them; regular interactions with others or being able to trust your neighbors contributes to a sense of belonging and is necessary for community functioning (Carroll & Rosson, 2013).

2.2.1 Conceptual Model of Community

Carroll (2014) characterizes community engagement as a publicly visible activity within the community. Members initiate and innovate practices that challenge and stimulate the community, and craft a shared identity through visible collective activity. Spending time in public, keeping up with local news and issues, socializing with neighbors, and volunteering are just some examples, see Table 2.1. At the individual level, social interaction and broadening of social networks from community engagement increases psychological well-being and perceived quality of life (Matarasso, 1997; Ziersch & Baum, 2004). Increased community engagement can widely benefit a community, as members get to perceive the people living around them as “neighbors” rather than total strangers, which builds solidarity and mutual trust (Putnam, 2000; Seyfang, 2003). Trust amongst individuals in a

Facet	Description
Collective identity (community attachment)	Members evoke and experience the social ideal of community through sharing values, episodes and traditions, mores, folkways, and experiences of community and world events. They feel belonging, shared emotional connection and sacred structures. They experience their community membership as part of who they are. They are committed to and believe in the community’s power and capacity to thrive and develop.
Local participation (community engagement)	Community is sustained by (at least some) members enacting shared identity, and by initiating and innovating new practices that challenge and stimulate the community. Members feel and observe that they can have an impact on community decisions and initiatives (self-efficacy) and believe that community is sustainable and effective (collective efficacy). Members are known; their conduct and contributions are visible; they feel accountable.
Dense and diverse support networks	Members provide and reciprocate social and material support through a multitude of different tie types. The community is a relatively densely interconnected subnetwork of the societal social network. Community members typically play a variety of roles, and often have multiple types of ties to the same other members. Community groups comprise a relatively densely interconnected subnetwork of the overarching societal network.

Table 2.1: Three facets of the conceptual model of community, borrowed from Carroll (2014).

local community makes a neighborhood a better place to live in because it helps people to abide by community rules and norms, which eventually leads to better community functioning (Tyler & Blader, 2013). Another positive outcome of increased community participation is an accumulation of social capital that is embedded in reciprocal social relations (Putnam, 2000). Individuals are no longer isolated when involved in a neighborhood with rich social capital; and generalized reciprocity with one’s neighbors strengthens the community (Putnam et al., 2000).

Neighbor relations are the catalyst for community engagement (Chavis & Wandersman, 2002) and create a virtuous cycle. Those lead to stores of social capital occur through having a variety of ties with others; strong ties are those among a group of people who meet frequently (e.g., a weekly recreational club), and weak ties are those familiar faces that an individual encounters infrequently or outside their primary social circles (e.g., the barista at a cafe) (Putnam et al., 2000). Hold-

ing weak ties with one’s neighbors can be beneficial as weak ties act as bridges that connect different social groups in a community (Granovetter, 1973) and also make one feel *at home* and secure in their community (Henning & Lieberg, 1996).

2.2.2 Decline of Civic Participation in the Modern Day

In the United States, the past few decades have seen a decline in civic participation as indicated by the decrease in attendance or membership in local hobby groups, non-profit organizations, church groups, and recreational clubs (Putnam, 2000). Putnam (2000) listed societal factors that incurred community declines such as suburbanization, the pressures from modern society, and individualized leisure activities mediated by technologies such as television. People’s personal and professional lives are busier than ever before, which creates challenges in devoting time to civic participation. Indeed, those involved in local policy planning reported that participation in such civic activities depleted their time (Chau, 2007). Increased leisure time spent alone with television and the Internet kept people indoors, creating less of a chance to encounter their neighbors. The decrease in community engagement resulted in the diminishing of neighborliness and trust in communities (Putnam, 2000). However, community engagement does not need to involve a high level of time or resource commitment from individual residents. Rather, by engaging in simple interactions with neighbors or learning about local history, people build their attachment to the local community (J. Chen, Hanrahan, Yuan, & Carroll, 2018; Han, Shih, Rosson, & Carroll, 2014; Putnam, 2000). Information and communication technology (ICT) has been used to encourage community engagement, for example through an application in which users can geo-reference ideas, opinions, or polls and interact with each other (Thiel & Lehner, 2015), explore local places of interest (Han et al., 2014), or engage with aspects of a local festival (Knearem, Jo, Wang, & Carroll, 2021).

2.2.3 Community Beliefs and Capacities

The concept of *community beliefs* falls under the “collective identity” (i.e., community attachment) facet in the model of community developed by Carroll (2014), and as such, members who hold positive ideals about their community are commit-

ted to the idea that it can thrive and develop to address shifting social conditions. *Community capacities* relate to “dense and diverse support networks” in the model, and function as a result of a variety of networked ties. In this subsection, these two concepts are presented in relation to disaster relief; pooled community beliefs become community collective efficacy (CCE) while community capacities refer to activities that can support resilience during periods of disaster.

To begin, self-efficacy is an individual’s belief in their own personal capacity to succeed in a specific domain in spite of challenges (Bandura, Freeman, & Lightsey, 1999). Collective efficacy extends from self-efficacy; it is the extension from individual beliefs at the personal level to beliefs that a group of people all hold (Goddard, Hoy, & Hoy, 2004). Applying this concept to communities, Carroll and Reese (2003) developed *CCE*, which is a set of beliefs that community members hold about their community’s capacity to successfully traverse challenging situations (Carroll, Rosson, & Zhou, 2005). As an example, a local citizen may hold the belief that their community can control hate speech while protecting members’ freedom of expression. CCE is continually developed over time from direct participation in community initiatives and from understanding that others’ are taking actions to better their community, but can wane if civic participation falters.

2.2.3.1 Community Collective Efficacy

Prior studies have identified several factors that can lead to CCE. Firstly, people who are higher in CCE hold a stronger sense of belonging and attachment to other members of the community, in other words, one’s neighbors, and are more activist in their community (Carroll et al., 2005). Social interaction, as simple as a neighborly conversation, can increase one’s sense of belonging (N.-T. N. Chen et al., 2013). Sense of belonging is self-reinforcing, in that feeling like your participation in and contribution to a group matters, can further participation in future community activities (Kim & Ball-Rokeach, 2006a). Secondly, active participation in community events and activities, especially ones where citizens can cooperate towards a common goal, can increase CCE (Carroll & Reese, 2003). For instance, citizens who participated in community activities, such as community gardening (Teig et al., 2009), community change actions and research (Berg, Co-man, & Schensul, 2009), or neighborhood-based organizations (Ohmer, 2008) had

higher levels of CCE because these activities contributed to collective social good. Through engaging in such activities, people can recognize their own and others' capacities to achieve a common goal and further develop belief in the ability of their community to succeed. Thirdly, when people recognize their community's assets, (e.g., community initiatives aimed at increasing safety and environmental sustainability) and the skills that fellow members employ to attain community goals, their CCE increases. However, asset visibility is not equally balanced such that not all assets or contributions are fully recognized; some can be completely invisible (Carroll, 2014). Surfacing previously invisible community efforts can further strengthen CCE; members become aware of additional community assets, while those who were doing previously invisible work can get a sense that their contributions are valued and that what they do is important in the community.

Prior studies have seen the potential for information and communication technology (ICT) to increase collective efficacy using community websites or smartphone applications. For instance, the usage of a community network that incorporates community news-related listservs, chat features, forms to register for local events, access to local businesses, or archives of local historical places was found to increase CCE (Carroll & Reese, 2003). A neighborhood storytelling network, where neighbors exchange casual everyday conversations or engage in discourse about community issues also brought an increase of CCE (Kim & Ball-Rokeach, 2006b). Accessing information from others in the local area is important to deal with new challenges in the community as such *weak tie* relations (e.g., acquaintances) increase the span of information and other resources that people can access (Granovetter, 1973). The majority of studies in this area have focused on how ICT community networks can result in increased CCE in *normal everyday settings*.

2.2.3.2 Community Resilience

Community resilience refers to a community's capacity to recover from collective adversity. It is different from CCE in two aspects. First, CCE is a collective *belief* that citizens have in their community's capacity to overcome adversity, while community resilience is the *product* of actualized collective efforts. Second, CCE comprises beliefs around everyday capacities, such as holding a belief about one's community's capacity to better social services for senior citizens or to reduce vi-

olence in the local community. In contrast, community resilience mainly focuses on disastrous situations, such as economic distress or natural disasters. Therefore, in disaster settings, CCE is a citizen's belief in the community's capacity to successfully manage the disaster. Strengthening various contributing factors of CCE (e.g., sense of belonging, asset visibility) is a critical factor to augment community resilience (Paton & Johnston, 2001).

To best illustrate the differences between CCE and community resilience, I will provide an example. During the COVID-19 pandemic, a local personal protective equipment (PPE) manufacturing group was started by concerned citizens who realized that PPE supplies for hospitals were limited in their area, and began producing masks, gowns, and other necessary healthcare items (Jo et al., 2021). The group's success in providing sufficient amounts of PPE and other healthcare items to local nursing homes and hospitals demonstrates community resilience. That concerned citizens started the group in the first place demonstrates their belief that their community is likely capable of providing support for healthcare workers (i.e. CCE). The result of the effort affirms such beliefs for those who contributed as well as for the larger community who benefited from the effort. As the example shows, the strength of CCE across a community can be used as a proxy for participation in community disaster relief, which can lead to community resilience.

Sustaining CCE is an urgent issue for a community undergoing a disaster, especially one as infrequent as a worldwide pandemic. People generally do not have past experience dealing with disasters, albeit prior experience is a major source of efficacy (Bandura et al., 1999). The response to the outbreak of COVID-19 deteriorated due to inexperience in long-term epidemic management. The pandemic brought about unfamiliar social changes such as widespread lockdowns and social distancing. Because prior work focused heavily on community-based activities that build and maintain CCE in non-disaster contexts (Carroll & Reese, 2003; Kim & Ball-Rokeach, 2006b), researchers haven't had the opportunity to investigate activities that contribute to CCE during a long-haul period of distress, such as that of the COVID-19 disaster, which as of this writing has been going on for over a year and a half. The unprecedented nature of the COVID-19 crisis requires the ability of communities to pivot quickly and build on the community's existing strengths.

Due to health risks associated with in-person gatherings, local communities had to rely heavily on and appropriate existing social media to realize disaster relief. However, social media is designed for everyday use, not for disaster relief, which can result in the dearth of design affordances/features that are necessary to facilitate community-based disaster relief. Studying how local communities leveraged social media, and understanding the obstacles they encountered can shed light on which design features could be incorporated into social media for increased efficiency in facilitating relief.

2.3 Approaches to Realizing Disaster Relief

Contrary to the popularized belief that when a disaster strikes, local citizens behave irrationally and selfishly, years of research in crisis informatics suggests that the opposite is usually the case (Solnit, 2010), with citizens providing for affected others altruistically. During a disaster, local communities rely on two different approaches, i.e., top-down and/or bottom-up, to realize disaster relief. The former includes the “command-and-control” model, which focuses on the development of government agencies and other authority structures to communicate decisions around disaster management (R. Dynes, 2006). This approach can efficiently distribute first-response emergency resources, such as emergency medical technicians or police to where they are needed (M. B. LaLone, 2012). As an example of top-down governmental support in the United States, the Federal Emergency Management Agency (FEMA) provides programs that disaster survivors can apply to for various types of support, e.g., financial and crisis counseling (Agency, 2021). However, the weakness of top-down approaches lies in their underestimation of the capacity of the social structure of the community to facilitate relief (R. Dynes, 2006). On the other hand, the bottom-up approach includes “community-based disaster relief”, which is a participatory model in which social capital and direct action are incorporated into disaster management (M. B. LaLone, 2012). Community-based disaster relief is successful if the affected communities are actively involved in their own relief efforts. In recent years, such relief has been activated via social media, which hastens response time as ordinary citizens can get real-time updates and be plugged in to help locally (Palen & Hughes, 2018). While community-based

relief often arrives before top-down relief, it can work in-tandem with government agencies to provide support where government agencies are lacking (M. B. LaLone, 2012).

2.3.1 Community-based Disaster Relief Over Social Media

Social support is generally defined as an individual's needs being met by others through interactions (Thoits, 1982). The widespread use of social media enabled people to exchange social support online, which is crucial during crises when people are physically displaced and/or demands for support surge. Extant studies in crisis informatics discovered that when disasters hit, citizens proactively use social media to coordinate and reciprocate social support, which can be categorized into three facets: (1) informational support (providing facts, advice, or suggestions); (2) instrumental support (offering service or resources); (3) emotional support (showing empathy and caring) (Cutrona & Suhr, 1992).

As a form of informational support amidst disasters when uncertainty is high, citizens shared information or advice on social media as *citizen journalists* (Gillmor, 2004). They provided text, photo, and video-based information about the status and the severity of the disaster in their area. Citizens in impacted areas favored social media posts from others nearby (Kogan, Palen, & Anderson, 2015) because they shared more accurate locally-relevant information in real-time than major news media (Hagar, 2001; Heverin & Zach, 2012; Starbird & Palen, 2010; Sutton et al., 2008). For example, during the 2003 San Bernardino, CA wildfires and the 2005 Hurricane Katrina disaster, local citizens used microblogs and community websites to collect and share location-specific information about disasters and evacuation places, find missing people, and provide temporary housing for displaced individuals (Palen et al., 2007). During the 2007 Virginia Tech shooting, citizens used websites and social media to report personal information that they had access to or had seen posted elsewhere, thus leveraging collective intelligence to arrive at accurate information about victims or missing persons (Vieweg, Palen, Liu, Hughes, & Sutton, 2008). Using Twitter hashtags for tracking information for disaster-relief was observed in a variety of disasters e.g., the 2013 Boston Marathon Bombing (N. LaLone, Toups, & Tapia, 2020), the 2010 Haiti Earthquake (Starbird

& Palen, 2011), and the 2009 Red River Valley flood (Palen, Starbird, Vieweg, & Hughes, 2010). The use of social media to spread information generated by the public complements and extends official information provided by government agencies (Palen et al., 2010), and connects local people who can provide instrumental support to those who need it.

Other work has investigated how local people in affected areas exchanged instrumental support (e.g., food, clothing, shelter). Prior studies even before the ubiquity of Internet connectivity elaborate the emergence of *altruistic communities* soon after the outbreak of disastrous events (A. Barton, 1970; Kaniasty & Norris, 1995) and identified citizens as being *first-responders* on the scene before official agencies arrive (Coles & Buckle, 2004; R. R. Dynes, 1970), providing first-aid and initiating search and rescue activities. More recently, after the outbreak of the 2010 Yushu Earthquake, online microblogs were used to seek and offer medical items and daily supplies to coordinate rescue and relief activities (Qu, Huang, Zhang, & Zhang, 2011). In the aftermath of the 2014 Oso landslide in Washington, people used Facebook and Twitter to provide food aid for those affected by the disaster (Dailey et al., 2016). People donated money to neighbors whom they encountered on a Facebook disaster relief group but had never spoken to before the crisis occurred (Wickes et al., 2015). Citizens have appropriated social media to coordinate instrumental disaster relief efforts with others in the local community, even when they were dispersed due to geographical disruptions.

Research to date suggested that disasters have a unifying force that strengthens solidarity and cohesiveness between local community members (Drury, 2018), i.e., emotional support. Getting through a disaster generates community spirit and shared identity among those affected by it, who share common threats and concerns. Citizens used social media to connect with others and as an outlet to share experiences, discuss concerns, and express sympathy that in turn helps stress management during crises (Wickes et al., 2015). For example, in the wake of the 2007 mass shootings at Virginia Tech, local people created online groups to grieve with others who experienced losses and then reported that the engagement in those groups helped them feel better (Vicary & Fraley, 2010). Social media for disaster relief can also forge new connections between community members and strengthen neighborhood relationships (Li, Stephens, Zhu, & Murthy, 2019; Procopio & Pro-

copio, 2007; Shklovski et al., 2008; Taylor, Wells, Howell, & Raphael, 2012), which have the potential to stay intact as a form of *social capital* even after disastrous situations stabilize.

2.4 Mutual Aid and Care-Mongering to Facilitate Community-based Disaster Relief

This section summarizes the activities that fall under the umbrella of the mutual aid movement, discusses mutual aid as a community-based approach to disaster relief, and contrasts mutual aid with other common social support approaches to community care. Next, the care-mongering movement, a branch-off of mutual aid that emerged during COVID-19, is explained in the context of disaster relief.

2.4.1 The Mutual Aid Movement

While there is no universally agreed upon definition of *mutual aid* (Soden & Owen, 2021), I consider it to encompass a variety of community self-help activities and as localized grassroots community-based efforts among historically marginalized or vulnerable populations that are often born from the realization that current top-down systems are not meeting the community's needs (Spade, 2020a). Mutual aid pools resources from social networks where members are symbiotic. It is administered by non-hierarchical and non-bureaucratic structures, and all the members, including people who receive support from mutual aid, autonomously participate in making decisions (Spade, 2020b). Mutual aid aims to develop individual and community competence to resolve their problems and reduce dependency and hierarchical structure between the recipient and the provider, which generates a sustainable support system (Hernández-Plaza et al., 2006). Mutual aid activities fall into three categories: 1) giving and receiving tangible help and support (i.e., instrumental support), 2) education on and action towards reducing social injustice in community policies and wider social systems (i.e., informational support), and 3) *care-mongering* acts of kindness including appreciation and promoting well-being and community safety (i.e., emotional support).

Mutual aid relies on informal networks where there exists reciprocal exchange

of tangible and instrumental support among those who do not have access to basic needs due to the societal economic gap. It can range from food distribution, housing provision, childcare to ride-sharing (Spade, 2020b). People can benefit from mutual aid networks, particularly when official infrastructures break down or charity agencies lack sufficient resources. At the beginning of COVID-19, for instance, existing disaster response organizations could not keep up with the increased need for food, and there was a delay in identifying who qualified to receive emergency resources (Knearem, Jo, Tsai, & Carroll, 2021). Mutual aid also creates new links between community members, which results in individuals having access to a broader range of resources and new sources of support (Hernández-Plaza et al., 2006).

Oftentimes, mutual aid is fixed in a desire to resolve the root causes of social inequality and achieve social transformation (Gould, 2018). In the United States, it has been practiced extensively in marginalized communities e.g., Black communities, working-class neighborhoods, migrant groups, and LGBT communities (Hernández-Plaza et al., 2006; Nembhard, 2014; Williams & Windebank, 2000). Mutual aid groups have organized social movements around structural injustice, such as economic inequality (Hammond, 2015), mass incarceration (Dickinson et al., 2021), housing eviction (Asad & Le Dantec, 2015), street harassment (Dimond, Dye, LaRose, & Bruckman, 2013), or health injustice (Nelson, 2011). Mutual aid also delivers political education workshops where people recognize the potential harms that the current social system can bring, learn through accounts of others' experiences of discrimination, and discover strategies for how to improve social systems to benefit marginalized groups in their community (B. E. Levine, 2018). Due to practices of collective self-determination and the non-hierarchical structure of mutual aid, people learn strategies to work across differences and to coordinate human activity without coercion (Spade, 2020b).

Mutual aid has been effective in creating a bond between people as they identify common needs and shared goals to improve their situation (Hernández-Plaza et al., 2006). Through exchanging reciprocal support and fighting together against social injustice, individuals gain a collective sense of belonging and a sense of their collective ability to bring social impact (Orford, 2008; Rappaport & Seidman, 2000). When people interact with other mutual aid members, they can share

similar concerns and understand each other's lived experiences. *Care-mongering* describes the emotional connections and community camaraderie within mutual aid, which provides a foundation for people to come together to tackle difficult social problems. For instance, online mutual aid groups created a safe place to grieve for people who experienced the loss of a loved one due to gun violence in their community by organizing public gatherings with hot food and vigils (Dickinson et al., 2021). Mutual aid has also been a source of peer-to-peer support in online health forums (Maloney-Krichmar & Preece, 2005), for workers in the gig economy (Irani & Silberman, 2013) and as a form of ride-sharing (Meurer, Stein, Randall, Rohde, & Wulf, 2014). Collectively resisting social injustice and caring for each other cultivates community solidarity and generates emotional support for members.

2.4.2 Mutual Aid for Disaster Relief

Although mutual aid groups have existed for decades to exchange support in everyday disasters (e.g., economic poverty), it has also served a key role in providing disaster relief during previous disasters such as Hurricane Katrina in 2005 and Hurricane Sandy in 2012 (Spade, 2020a). During COVID-19, mutual aid has made a resurgence across the United States, as groups that were created in the initial days of the outbreak have gained traction across the country to tackle the exacerbation of the preexisting economic gap and health crises (Knearem, Jo, Tsai, & Carroll, 2021). The concept of mutual aid has been adopted to a more general population because COVID-19 created new or compounded existing social issues for folks who were previously able to get by without needing to ask for community support.

2.4.3 Contrasting Mutual Aid with Other Approaches to Addressing Social Needs in Local Communities

Mutual aid differs from other forms of community care such as time banks, nonprofits, and existing local networks. Timebanks, such as Timebanks USA¹ or hOurWorld², are an example of an ongoing and generalized reciprocal exchange in

¹<https://timebanks.org/>

²<https://www.hourworld.org/>

which time functions as money. Users earn and spend time credit for helping others and requesting help. The economic focus on tracking credits and debts earned can overshadow the community benefits of participation (Bellotti et al., 2014). In contrast to timebanks, deficits do not exist in mutual aid because support offers and requests are not tracked.

Non-profit organizations (NPOs), which are sometimes also referred to as charities, are structured organizations which often serve people experiencing financial or other hardship. NPOs are usually governed by a board who oversees decisions within the organization. Many NPOs require their recipients to meet certain criteria (i.e., means testing) in order to access services. In contrast to mutual aid, NPOs are often operated by donations made by corporations or individuals, and aid delivery comes from the top-down. People who donate to NPOs usually cannot specify a recipient for their donation.

Finally, existing local groups, such as NextDoor³ or local informational groups on Facebook (e.g., Housing Groups or Local Mom’s Groups) differ from mutual aid in that the main purpose of these groups is topic-based conversation, not generalized reciprocity. Many of these groups existed before the pandemic and remain aligned with their original purpose of sharing information, news, or discussing neighborhood issues. In NextDoor, it is uncommon to see requests for aid. Besides, NextDoor is a closed-community which is only accessible to users within a specified geographic area. While mutual aid encompasses information exchange and sharing of relevant local news, it goes beyond everyday conversational interactions. Instead, mutual aid offers an active approach to addressing community issues through working together with others in the local community to address inequalities and provide timely, person-to-person support (Spade, 2020a).

2.4.4 The Care-mongering Movement

The spectrum of caring within a community is vast, ranging from informal acts of compassion and acknowledgement throughout daily life, to more focused caring about the welfare of others through teaching and learning. In local communities, acknowledging and leveraging the capacities of all members of a community is

³<https://nextdoor.com/>

a key to creating effective care (E. S. Cahn, 2000). One's community can serve an important role during disasters by acting as a support system of care, i.e., looking after each other's needs and welfare. In the past, *altruistic communities* comprised of local people in the affected area provided help to fellow community members emerged in response to short-term disasters (A. H. Barton, 1969; Kaniasty & Norris, 1995). In the aftermath of a disaster, care prioritizes offering help or care to those that need it most, usually people who are most vulnerable to the changing situation. During COVID-19, coordinated community helping had a positive impact on the psychological bonding of community members by building a sense of community identification and unity during the pandemic (Bowe et al., 2021).

While care-mongering activities are a facet of mutual aid, care-mongering as a social movement for disaster relief (e.g., (Seow et al., 2021) emerged on social media during COVID-19 as a space for citizens to come together support each other's immediate and emotional needs. It differs from traditional mutual aid in that the emphasis is on providing immediate care and support, rather than unpacking the root causes of social injustice in the community. The term arises from the less-positive word "scaremongering", i.e., the spreading of frightening or ominous reports or rumors that became prevalent over social media at the beginning of the pandemic (Gerken, 2020). The often unpredictable events surrounding the pandemic fueled panic as misinformation, misleading rumors, and conspiracy theories spread quickly via social media (Depoux et al., 2020), initially outpacing the spread of the disease caused by the novel coronavirus, COVID-19. Social media sites became a hotbed of unverified information. During crisis situations, an abundance of rumors and a lack of clear information is known to play an active role in spreading fear and anxiety through social media (Oh, Agrawal, & Rao, 2013; Y. Wang, McKee, Torbica, & Stuckler, 2019). Such scare-mongering is prevalent and cascades through social media quickly as people collectively attempt to understand what is happening around them in periods of increased uncertainty. Online care-mongering was started to spread the opposite of panic in people, to bring out community camaraderie, and allow local citizens to tackle the needs of those who are at-risk (Gerken, 2020). Care-mongering groups on social media are support-oriented, and spread kindness through acts of good-will and other pro-social behaviors, all while

serving to connect people with others in their local community on a positive level.

The social issues that arose during the pandemic were not solely about the transmission of the virus that causes COVID-19 and risks to physical health. Rather, many people experienced feelings of helplessness, as they didn't know where to go for support, or held negative feelings about their perceived inability to do anything about the situation (Jo et al., 2021). Widespread lockdowns and social distancing measures implemented by local governments meant that familiar means of seeking support or helping the community was suddenly out of reach. Care-mongering became increasingly important. At the onset of the pandemic in March 2020 in the United States, local care-mongering groups began to appear on social media (e.g., Facebook), created by concerned local citizens who wanted to find a way to facilitate support for others in their geographic community (Kipp & Hawkins, n.d.; Knearem, Jo, Tsai, & Carroll, 2021). Care-mongering groups cater to the direct needs of their local populations by providing instrumental support, i.e., connecting individuals with specific aid requests to those who can provide aid, informational support, i.e., to locally-relevant information on stocks of supplies or connections to local resources, and emotional support, i.e., talking someone through a tough situation (Booth, 2020; Gerken, 2020; Knearem, Jo, Tsai, & Carroll, 2021; Seow et al., 2021; Vervaecke & Meisner, 2021). Care-mongering is based on voluntary reciprocity, where even the most vulnerable people also offer their help to the rest of the neighbors, especially by providing company and support (Cano-Hila & Argemí-Baldich, 2020). While providing instrumental support (i.e., aid offers and requests) is an inherent part of taking care of one's community, equally important in the context of a long-haul disaster is the emphasis placed on emotional support. Emotionally connecting to one's neighbors provides the opportunity for people to work together and strengthen their community's response to an ongoing disaster.

2.5 Synthesis and Research Direction

The areas of prior research covered in this chapter provide background on the key topics that most closely relate to my empirical studies, and offer a pathway for thinking about my work in the context of the wider research on community-based

disaster relief in geographic local communities. While the extent and severity of COVID-19 may fade from memory over time, the initial year of the pandemic was full of surprises and uncertainties. Elucidating on the events of this first year, when the research in this dissertation was conducted, provides the necessary context for understanding the findings and implications from each study. Additionally, investigating community-based disaster relief necessitates an understanding of how socio-technical systems, specifically social media, have aided in disaster relief in previous disasters, and how local citizens have co-opted and configured the platforms to support the unique needs of the disaster at hand. COVID-19 is a long-haul crisis, which requires the ability of communities to pivot quickly and build on the community's existing strengths and social capital. The emergence of online *mutual aid* or *care-mongering* groups at the onset of the pandemic was an opportunity to understand community-based disaster relief in the context of a long-haul pandemic that was initially expected to last a few weeks or months. Instead, the United States has remained in a state of emergency until the time of this writing (Becerra, 2021). The studies in this dissertation contribute a long-haul view of disaster relief through mutual aid to the ongoing collection of literature on citizen-based disaster relief initiatives for the betterment of survivors and other affected community members.

Evaluation of Mutual Aid Platforms Through Scenario-based Claims Analysis

In this chapter, I introduce an exploratory study in which I developed scenarios and associated claims as a method to summarize the core pros and cons of existing platforms that were appropriated for online mutual aid during COVID-19. The work described herein is based on the publication *Making Space for Support: An Exploratory Analysis of Pandemic-Response Mutual Aid Platforms* (Knearem, Jo, Tsai, & Carroll, 2021).

3.1 Introduction

The COVID-19 pandemic ushered in an era of unprecedented hardship across the United States. In response, local community members leveraged mutual aid as a form of citizen-based disaster relief. The goal of this exploratory study is to gain an understanding of how the most popular information and communication technology (ICT) platforms that were appropriated by mutual aid groups supported mutual aid efforts during the Covid-19 pandemic in the United States. As the pandemic continues, understanding how current information and communication technologies (ICTs) both support and challenge the effectiveness of localized mutual aid will

provide important insights towards designing new ICTs and/or using existing ICTs to further support timely, egalitarian, peer-to-peer community-based relief for this pandemic and future disasters.

We conducted a scenario-based claims analysis based on Carroll and Rosson (1992) of the top two most-utilized ICT platforms by mutual aid groups: Facebook Groups and Google Drive. Specifically, we seek to answer the following research questions: 1) What are the benefits and challenges of using Facebook Groups and Google Drive with respect to facilitating mutual aid, and 2) What are the necessary design features to make mutual aid platforms effective at facilitating aid? We contribute to the literature in Crisis Informatics and Human-Computer Interaction (HCI) an analysis of the significant design features that currently support the facilitation of mutual aid on online platforms, and suggest additional features to further community-based disaster relief.

3.2 Methods

To investigate our research questions, we used the publicly available Mutual Aid Hub pandemic-related Mutual Aid Group data set ¹ to discover pandemic-related mutual aid groups. The data set is maintained by Town Hall Project, who is responsible for approving the groups contained within. In order to be included in the data set as a mutual aid group, the group organizer is required to submit a form declaring that their group is a mutual aid group, the location (city/state), population(s) served, and web links for members to join the group or offer/request support. Town Hall Project does not verify or vouch for any network or individual offerings, which is the responsibility of individual participants.

As of January, 2021 the data set included 851 mutual aid groups across all 50 states. For social media platforms, 440 listed a Facebook Group, 7 listed an Instagram account, and 20 listed a Twitter account. To collect and distribute information about aid requests and offers of support, 30 groups used a general Google Spreadsheet, 64 used a general Google Form, 230 used a Google Form for aid offers, and 184 used a separate Google Form for aid requests. There was considerable overlap in mutual aid groups who used a Facebook Group and also

¹available at <https://www.mutualaidhub.org/table-of-networks>

included links to Google Sheets or Forms. Some Google Forms were connected to a publicly accessible Google Spreadsheet where people can view Google Form submissions from aid requesters and providers. For this exploratory work, we decided to focus our scenario-based claims analysis on the top two most used platforms, Facebook Groups and Google Drive (i.e., Sheets and Forms), because 1) they are the most widely-used platforms for organizing mutual aid and 2) analyzing how they are used will provide foundational insights for developing effective mutual aid platforms.

We conducted a scenario-based claims analysis based on the task-artifact framework developed in Carroll and Rosson (1992). A claims analysis summarizes the core pros and cons of an existing design, and is used to elicit design strengths and weaknesses from exemplary scenarios. To inform the development of the scenarios and the logic behind the claims in our analysis, we randomly sampled 20 mutual aid groups which only used a Facebook Group, 20 which only used Google Drive Sheets and/or Forms, and 20 which used both. We observed the user interactions on Facebook Groups for two weeks in mid-January, 2021 to see how the group was used by members to facilitate mutual aid. We observed the data on Google Sheets to understand what questions were asked of users and the types of information that groups required to make a request for or offer of support, as well as any publicly available Google Form responses. Most of the Google Sheets and Forms contained less than 100 responses.

The research team met and discussed the analysis; this resulted in the identification of mutual aid objectives associated with three user groups: people who offer aid (*aid providers*), people who request aid (*aid requesters*), and group administrators (*admins*). Next, one person from the research team created short scenarios for the three primary user groups that were identified. Once the scenarios were written, three members of the research team reviewed each one to ensure that it represented the observations and objectives that we identified from the randomly sampled mutual aid groups. As a group we discussed each individual's feedback, and revised the scenarios until we all agreed that they accurately represented each user group. Finally, we used the scenarios as a basis for the claims analysis, to describe and exemplify the pros and cons of each user role's practices. In the following section, we present our three scenario-based claims analyses.

3.3 Findings

Spade (2020a) categorizes mutual aid as collective coordination to care for each other and share resources where people mobilize to address real-life issues affecting vulnerable populations through collective action. For Spade, mutual aid is a non-hierarchical, participatory approach to getting needs met in the community, and when people participate they learn about collaboration and decision making, on top of becoming familiar with neighborhood resources (Spade, 2020a). In contrast to top-down approaches, mutual aid empowers people to cultivate connective, caring relationships with other people. Because mutual aid favors a flat organizational structure, users roles are fluid, meaning that a user is not defined by one role throughout the duration of their participation in mutual aid. They can take on multiple roles in the group by switching between them based on their own evolving situation; for example by requesting a type of aid, while also being able to offer another type of aid to fulfill someone else’s request. We noticed a similar phenomenon of self-initiated, active approaches to care in the pandemic-related mutual aid groups. Both Facebook Groups and Google Drive supported mutual aid, albeit in different ways due to the features of the two platforms. The following subsections present a scenario for each user role followed by a claims analysis of the pros and cons of the two platforms to achieving the user group’s goals for mutual aid.

3.3.1 Aid Provider

Aid providers refers to a users offer to provide a type of aid to someone in need through writing an aid-offer post on Facebook groups, commenting that they can help on an aid requester’s post on Facebook Groups, or through an Aid Offer Google Form.

Scenario.

Jamie joined his local mutual aid group on Facebook because he wanted to help other people in his community who were badly affected by the pandemic. He filled out an aid offer Google Form that was pinned to the Facebook Group by a group moderator, where he could indicate how he wanted to support others (e.g., by delivering groceries). **The form**

said that he would be contacted if his help was needed (**Claim 1**). However, he noticed that the Facebook group was very active with support request posts, many of which were already being addressed by others. He found it laborious to scroll through the posts on the group's Facebook timeline to find someone who needed his help with grocery delivery who hadn't already been helped. Finally, **he saw a post with a grocery delivery request that no one had responded to yet (Claim 2)**. He did not know the requester and wanted some more information before reaching out so he clicked on the user's name to visit their profile and get better idea of the member's engagement with the group. **After reviewing the requester's post history in the group and affirming that the requester lived locally by looking at their "current city" (Claim 3)**, he commented that he could pick up food and drop it off. The requester expressed gratitude by commenting "Thank you!". He then privately messaged the requester on Facebook Messenger to discuss the details.

Claim 1: The Aid Offer Google Form can be used to pair aid providers with aid requesters; by using the Form, aid providers do not have to spend time searching for a requester on their own.

- + The Aid Offer Google Form is a low-stakes way to indicate the type of support a provider can give.
- But, the Aid Offer Google Form dis-empowers aid providers because they cannot control how long it takes to be paired with a requester, or become aware of urgent needs.
- The pairing may not be a good match of the provider's resources for the requester's ask.

Claim 2: The Facebook group feed provides opportunity for aid providers to view posts by aid requesters to pair with a person who needs the aid that they want to provide.

- + The feed shows all aid request posts to all members of the group, widening the support network.

- + When responding to a request for support Facebook post, the aid provider and the requester can discuss the need and logistics around providing aid.
- + Aid providers can choose who they want to help after reading the aid request post.
- But, scrolling through posts on the Facebook Group’s feed is time consuming and labor-intensive for aid providers.
- But, requester’s posts on Facebook are not labeled by type of request, and aid providers must read each post in detail to identify the requester’s needs.

Claim 3: Before offering aid on the Facebook group, the aid provider can view the profile of the aid requester to check the requester out from a safety standpoint, including their group posting history.

- + Getting more information about someone who is not known is helpful in assessing the potential safety risks involved in providing monetary or offline aid.
- + The group posting history provides insights into how the requester responds to offers of aid or information, i.e., their interaction patterns.
- There could be aid requesters who do not have past activity history but need support.

3.3.2 Aid Requester

In this subsection, *aid requester* refers to a user who posts in a Facebook Group that they need aid from someone in the community. These posts most frequently come from the aid requester themselves, but administrators can make anonymous aid request posts. Aid requesters are also individuals who fill out an Aid Request Google Form.

Scenario.

Jennifer lost her job due to the pandemic. For the first time in her life, she is worried about affording necessities for her family. A neighbor

shared a link to a newly formed mutual aid group that uses a Google Sheet to facilitate aid. **On the Sheet, there was a column for the date the entry was added, the person’s name, contact information, information about the needed type of support, and online payment service such as Venmo (Claim 1)**, which she thought was convenient. She noticed that many of the requests were not updated since they were added, so it wasn’t clear if anyone had received help or not. Another neighbor told her about a local mutual aid Facebook group. She joined and liked that she could familiarize herself with the concept of mutual aid by looking at the types of posts that others were posting. In contrast to the transaction-based Google Sheet, the group seemed conversational, and posts requesting aid were getting comments with advice and sometimes offers of financial support. **She posted her own request which included some personal details and a photo to help others understand her situation (Claim 2)**. She soon received a reply from **someone who told her about a church that had a small food pantry (Claim 3)**. Another person asked for her Venmo ID so that people could send her money directly, which she gave privately through Facebook Messenger.

Claim 1: The Google Sheet provides a convenient “template” for requesters, which explicates the necessary information for requesting mutual aid, and it is available for every user to follow.

- + Writing in the required information on the Sheet makes it clear what the requester is looking for from an aid provider.
- + Open access to the Sheet allows for wide participation across the community.
- But, the template turns requests into transactional interactions (e.g., someone who offers support can fulfill a request and the job is done), which inhibits relationship building or other forms of social support.
- But, there is no way for people to initiate dialogue through the Sheet.

- But, the unrestricted access to personal information on the Sheet presents a privacy issue for requesters, who must list either their contact information or online payment service ID to receive help.

Claim 2: On Facebook Groups, people who need aid can validate their situation by including photos and other personal details alongside their need in their post.

- + This can humanize the person’s situation and drive empathy.
- + The additional explanation may help providers think of creative ways or outlets for providing aid.
- But, the requester risks receiving negative comments about their situation from less tolerant members.

Claim 3: Posting in the Facebook Group initiates a relationship-building dialogue between the requester and others.

- + Publicly available comments can provide useful information to more people than just the original poster.
- + New posts or posts with new comments appear at the top of the feed, which improves the chance that someone will see and contribute to the conversation.
- + The requester takes an active role in securing their own aid by working with providers.
- + It is visible to everyone when aid requesters do not receive sought support, and others can intervene to offer.
- But, posts from requesters that do not receive any activity (i.e., comments) may get buried in the feed, reducing the chance that someone will reach out.

3.3.3 Group Administrators

In this subsection, *group administrators* refers to users who administer the Google Sheet/Forms or the Facebook group. On Google Drive, they are the ones who

receive the Aid Offer and Aid Request Forms, and moderate any public-facing Google Sheets. On Facebook, they are identifiable to all users by a badge next to their name.

Scenario.

At the beginning of the COVID-19 pandemic, Alex was concerned about how people in his local community would fare. He started a Google Sheet to facilitate the pairing of requests for financial or other support with aid providers in his local area, and shared it online. Quickly, the amount of people offering aid outnumbered aid requests. He reasoned that this was because people were not comfortable admitting that they needed help publicly on a Google Sheet. He then created an Aid Offer Google Form and a Aid Request Form, where responses would go directly to a new, private Sheet that only he could access. **He quickly became overwhelmed by responses from both forms, and was unable to efficiently pair aid requesters with providers (Claim 1).** Finally, Alex created a Mutual Aid group on Facebook with the hope that group members would use it as a resource for facilitating mutual aid without his interference.

Earlier that day, **an embarrassed aid requester sent him a private message to ask if he could post an aid request anonymously on her behalf (Claim 2).**, for which he agreed to facilitate. He continued his daily task of scrolling through the posts on the feed to see if any requests for aid were not yet met. If a request was vague, he commented to ask the poster to include specific information. **He commented “Bump” on those posts with unmet requests to give them increased visibility on the group’s feed (Claim 3).** This put the post near the top of the feed, and also let the group know that even if the post had comments on it, seeing “Bump” meant that the aid requester was still looking for help.

Claim 1: Using standardized Google Forms to collect offers of support and need requests allows the administrator to pair individuals privately.

+ Maintaining user privacy around personal information is less of a concern.

- + Collecting the same information from each person ensures that there is sufficient information for pairing.

- But, neither aid providers nor aid requesters have a say in, or access to the criteria for how they are paired.

- But, the onus is on the group administrator to match requests with offers, and to initiate the interaction.

- But, relationship building, a benchmark of mutual aid, is obstructed when all responses are private.

Claim 2: On Facebook Groups, group admins make anonymous posts on behalf of aid requesters to facilitate pairing with an aid provider.

- + This allows for greater participation by vulnerable groups who need aid (e.g., victims of abuse) because it creates a safe space for aid requesters who do not want to reveal themselves.

- + It may encourage people to share details about their situation that they wouldn't attach their name to.

- But, aid providers may hesitate to offer support for anonymous posters since they can't tell who the person is.

Claim 3: Facebook Group Administrators can change the order in which posts appear in the group's feed by adding a comment to "bump" posts up in the list.

- + Aid request posts that are still unfulfilled can become more visible to group members.

- But, boosting visibility for some aid request posts necessarily moves other equally-important posts further down the feed, where they may not receive responses, thus creating a cycle.

- An aid request can receive a lot of comments without anyone fulfilling the request, and the administrator could skip over the post if they saw that people were commenting.

3.4 Design Features for Mutual Aid Platforms

Our scenarios were designed to reflect our observations of user group objectives on two mutual aid platforms during COVID-19. To answer our first research question about the benefits and challenges of Facebook Groups and Google Drive for facilitating mutual aid, we conducted a scenario-based claims analysis of three primary user groups. This serves as a jumping off point for answering our second research question, what are the necessary design features which make mutual aid platforms effective at facilitating aid. Based on the pros and cons of our claims, we've identified aid request templates, a way to control the visibility of requests, user profiles, and a mechanism for dialogue, as design features that we recommend be implemented into mutual aid platforms.

3.4.1 Aid Request Templates

Providing aid request templates for public posts in Facebook Groups can help aid requesters to be specific in their needs and how they wish to be contacted. Aid requesters could use the template to understand which information is needed in order to receive support. If aid requests followed a standard template, it could be less laborious for aid providers to find aid requests in the feed that they can fulfill.

In the scenario in 3.2., the questions on the Google Sheet can provide the basis for a public post template, such as contact information, information about the needed type of support and online payment service options. The *aid request post* template can have a checkbox for the type of aid that a requester is seeking, so that aid types are automatically categorized for aid providers.

Prior studies have discussed the usefulness of structuring the aid request format (e.g., through hashtagging) for automatic parsing during natural disasters. Affected people can collectively use a standardized hashtag so that the disaster type, affected areas, and severity of damage would be machine-readable, and a high volume of data can be processed rapidly (Starbird & Stamberger, 2010). We could apply this idea to mutual aid. If types of aid requests and aid offers become standardized, a recommendation system can be embedded within the platform. An automatic pairing process can lessen the burden of administrators having to manually pair aid requesters with providers or the burden of aid providers reading

through all the posts requesting aid. However, implementing a template entails making a trade-off between efficiency and forming personal relationships.

3.4.2 Controlling the Visibility of Requests

Providing a status on the post to indicate whether or not an aid request has been fulfilled can point aid providers towards unfulfilled requests. Fulfilled request posts could be marked as such and moved off the top of the feed. When determining the order of appearance of posts on social media for mutual aid, balance between the visibility of new aid request posts and older requests that are not yet fulfilled is necessary.

In 3.3., Claim 3 highlights the usage of “bumps” to make unfulfilled aid requests noticeable to aid providers. Maximizing the chance that requests receive attention can engage existing members and attract new users to the platform. For existing members, not getting enough responses from others can lead to drop-out (Y.-C. Wang, Kraut, & Levine, 2012). If aid distribution is unbalanced or skewed toward undemanding requests, aid requests that are more complex or desperate could be ignored. If many posts receive comments, newcomers can determine how successful the group is in realizing aid exchange, which increases their likelihood of joining the group (J. M. Levine & Moreland, 1994). This could also contribute to community collective efficacy, or the belief that the community is capable of taking care of each other (Carroll & Reese, 2003). An indicator showing how close a request is to being fulfilled, e.g., \$25 of \$50, could increase the visibility around request fulfillment, and encourage members to finish the request.

3.4.3 User Profiles

Within online platforms where participants are not familiar with others and relationships are not yet well-established, participants want to reduce their uncertainty towards others (Berger, 1988). In such situations, members can learn more about each other through their user profile. Personal information disclosure from aid requesters, i.e. use of photos or first names, can elicit greater support in online settings than posts without such details (Feng, Li, & Li, 2016).

In 3.2., Claim 2 suggests that aid requesters can validate their situation by

including photos and other personal details alongside their needs. User profiles can provide information on how valid a counterpart is, while personal details can increase empathy for the aid requester’s situation. This can grow the likelihood of appropriate aid provision. As we saw in 3.1., Claim 3, aid providers can also get insight into aid requesters from photos or personal details, which could make engaging in mutual aid safer. Neither Google Forms nor Google Sheets requested a user’s social media profile to request or offer support. Asking for this information may increase familiarity between parties.

Mechanism for Dialogue. In transactional interactions, participants merely focus on solving defined tasks, which inhibits expression of their individuality (Gumperz, 1964). In contrast, when casual conversation is enabled, people can express themselves more fully. Such dialogue can promote social presence because it increases intimacy, empathy, and trust (Soon & Soh, 2014; Yang, Kang, & Cha, 2015).

In Section 3.2., Claim 3 suggests that publicly posted aid requests initiate relationship-building dialogue. In online support exchange settings, people usually do not know others outside of the platform. However, both aid providers and requesters want to know for who and from who they are providing or receiving aid, in order to assess potential safety risks. Trust needs to be built before agreeing to provide and/or receive aid. Such social presence can prevent aid requesters from feeling dehumanized in online settings (Mesch & Beker, 2010) and it further increases retention and commitment (Farzan, Dabbish, Kraut, & Postmes, 2011).

3.5 Limitations

We acknowledge that there are other platforms for facilitating mutual aid that we have not investigated, such as Instagram accounts, websites, other digital media, and offline neighborhood initiatives. However, we based our analysis on the two most widely used platforms. Our scenarios covered core interactions and were not meant to elucidate uncommon interactions or less-frequently used features, and additional claims could be made. Focusing in on such common use cases provided direction for future work in understanding various facets community-based disaster relief through social media.

3.6 Chapter Summary

In this chapter, I introduced three fluid user roles in online mutual aid groups, and through a scenario-based claims analysis approach, outlined the benefits and detriments of facilitating mutual aid through the two most popular platforms adopted by mutual aid groups during COVID-19. Through this study, I learned that while Google Drive and Facebook were both helpful tools for disaster relief, Facebook groups brought the most value in terms of visibility of generalized exchange and development of nascent relationships with other members in the community. In addition, the Facebook Group allowed for many members aside from the original poster to view and potentially learn about useful community information or resources by reading the comments associated with an aid request post. From this analysis, I became interested in learning more about the activities, initiatives, and long-term work that occurred within online mutual aid groups outside of generalized exchange for immediate needs. I was also interested in understanding how mutual aid groups adapted over the course of the first year of the pandemic. These musings prompted the interview study with mutual aid organizers that is outlined in Chapters 4 and 5.

Chapter 4

Interview Study to Understand How Online Mutual Aid Facilitated Support During COVID-19

In this chapter, I introduce an interview study with online mutual aid group administrators from across the United States. The findings detail how online mutual aid groups facilitated aid for immediately apparent needs and provided support through long-term initiatives for chronic community needs through generalized reciprocity, as well their engagements in activities towards building justice into the community during the first year of COVID-19. This chapter is based on the unpublished manuscript entitled *Solidarity not Charity! Empowering Local Communities for Disaster Relief during COVID-19 through Grassroots Support* (Knearem, Jo, & Carroll, 2021b).

4.1 Introduction

COVID-19 caught communities across the world off-guard and it quickly became apparent that most communities in the United States were ill-prepared to handle the social disruptions caused by a biological disaster. During COVID-19 infrastructural breakdowns across sectors of business, economy, education, healthcare and more strained already fragile resources, which created environments of uncer-

tainty in the months after the declaration of the pandemic by the World Health Organization (WHO). In response, mutual aid groups bloomed online across the United States to fill in the gaps in services and help local communities cope with infrastructural breakdowns.

In this paper, we are interested in exploring how members of online locally-based mutual aid groups facilitated disaster relief, and how disaster relief initiatives developed and maintained over the course of the first year of COVID-19. We conducted interviews with 17 online mutual aid group administrators who represented 13 groups across the United States learn how the groups they represent supported group member's needs as well as the impact of the groups' work on the local community. Specifically, we seek to answer the following research questions: 1) What inspired citizens to initiate local mutual aid groups during COVID-19, 2) How did the focus on providing aid progress over time within the groups, and 3) How were mutual aid groups able to sustain themselves during the first year of the pandemic?

Our study with online mutual aid group administrators makes the following contributions to the nascent body of CSCW and crisis informatics research on community-based care during COVID-19: 1) we identified four aspects of mutual aid which supported localized disaster relief: *providing for immediately apparent needs, meeting needs through generalized exchange, supporting chronic needs gave visibility to pre-existing conditions, and building justice into the community*; 2) Our study demonstrates how mutual aid groups re-focused towards the most pressing needs to positively impact vulnerable people in local communities, and 3) The strengths of mutual aid as an adaptable model for incorporating human dignity and respect into disaster relief during periods of chronic disaster.

4.2 Methods

Our goal is to gain a rich understanding of how online mutual aid groups facilitated disaster relief and supported their local community during the first year of the COVID-19 pandemic. To this end, we conducted an interview study with founders and administrators of COVID-19-related online mutual aid groups. In this section, we provide details on the interview study design, participant recruitment, and data



Figure 4.1: Participant demographics and geographic group location.

analysis and theme development. This study was approved by our institution’s Institutional Review Board (IRB).

4.2.1 Interview Study Design and Participant Recruitment

We conducted our study from January to March, 2021, approximately one year from the beginning of the pandemic. We engaged in semi-structured interviews with interview participants (referred to as *interviewees* in the Findings section) who were administrators of their local online mutual aid group to understand how such groups facilitated disaster relief in their local communities during the first year of COVID-19 when social changes were frequent and uncertainty was high. In our interview protocol, we asked questions related to stories and experiences around the creation, moderation and ongoing management of the online mutual aid group, as well as to understand the group’s initiatives and who is being served. For example, we included questions about motivation for taking an administrative role, how the group came up with and implemented initiatives, the types of aid being requested, how aid was being provided, and long-term goals for the group.

To recruit participants to the study, we first used the publicly available Mutual Aid Hub pandemic-related Mutual Aid Group data set ¹ to discover pandemic-related online mutual aid groups. This data set is maintained by Town Hall

¹available at <https://www.mutualaidhub.org/table-of-networks>

Project, who is responsible for approving the groups contained within. In order to be included in the data set as a mutual aid group, the group representative is required to submit a form declaring that their group is a mutual aid group, the location (city/state), population(s) served, and web links for members to join the group or offer/request support. As of January 2021, when this study began, the data set included 851 mutual aid groups across all 50 states. For social media platforms, 440 listed a Facebook Group, 7 listed an Instagram account, and 20 listed a Twitter account. We also used snowball sampling to get referrals from our participants for additional administrators of other pandemic-relief mutual aid groups. We purposefully selected a geographically diverse sample of groups across the United States (see Figure 4.1). The groups that we recruited administrators from met the following criteria: the group considers itself to be a local mutual aid group (i.e., calls itself a mutual aid group on social media, their website or on Mutual Aid Hub), (2) the group is publicly discoverable online; and (3) the group is active as indicated by frequent group activity (e.g., over 5 posts per day or web updates at least once per week).

For the groups that met the above criteria, we attempted to recruit administrators through either a private message on Facebook, an email address if one was listed, or the contact form listed on the mutual aid group's website. We sent out 25 interview requests for which we received 15 replies from administrators representing 11 groups. We further identified two additional interview participants from two separate groups through snowball sampling for a total of 17 participants who represented 13 groups. Four participants were men and 13 were women. Due to ethical concerns around recruiting vulnerable people who were users of mutual aid in the online groups, we only interviewed people who self-identified as group administrators. All participants (see 4.1) met the following requirements: (1) were 18 years of age or older, (2) were in an administrator role in an online local mutual aid group, and (3) were willing to participate in an interview with a member of the research team. No compensation was provided for participation in this study. For the safety of all involved parties during COVID-19, no in-person research was conducted. Each interview lasted between 45 minutes and 1.5 hours, depending on the participant's schedule and depth of involvement in their group, and took place over the phone or on video conferencing software such as Zoom. Oral consent for

participation in the interview and for audio recording was obtained prior to the start of each interview.

4.2.2 Data Analysis

All 13 interviews were fully transcribed by a member of the research team and coded iteratively using the constant comparative analysis method (Charmaz, 2006). To begin, one researcher coded the first four interviews to inductively develop the initial set of codes and added them to a code book. Next, two additional members of the research team went through the first four interviews and independently assigned one or more codes to the quotes that were initially pulled from the transcripts as well as to any new quotes that they added to the data set. We added new codes and their descriptions into the code book as we noticed new information in the data. Next, the research team met and discussed any discrepancies until an agreement was reached. After this, the remaining nine interviews were then coded independently by the three researchers. At the conclusion of the first round of the coding process, the code book contained 35 codes. Example codes include *generalized reciprocity* (i.e., people who received support from the group pay it forward to their community through the group), *collaboration* (i.e., the mutual aid group works with another group or a non-profit to reach people), *immediate needs - cash* (i.e., stories about how the group met a person's immediate need through a cash donation) and *rent relief* (i.e., initiatives aimed at ensuring long-term housing for people). The research team then held a series of meetings and collectively read and discussed the quotes to validate the originally identified codes. Once agreement was reached for every quote, three researchers iteratively aggregated the quotes contained within the 35 original codes until we reached a consensus on nine high-level themes (See Table 4.1). While nine themes emerged from our data, this paper primarily draws on *Conceptualizing the Group*, *Defining Mutual Aid*, *Engagement*, *Immediate Needs*, *Long-term Projects*, and *Mutual Aid Users* as these themes are most relevant to the research questions.

High-Level Theme	Description	Aggregated Codes
Conceptualizing the group	How and the group was formed, as well as progression over time and plans for the future	Changes over time, Future aspirations, Impact, Motivations for engaging in mutual aid
Defining mutual aid	The values of mutual aid and examples of how mutual aid differs from other types of social support	Community values, Different from charity, Ensuring inclusivity
Engagement	Ways that the group facilitated participation in activities that benefit group members and/or the local community	Collaboration, Community voluntary work, Facilitating connections, Generalized Reciprocity, Failures
Immediate needs	Types of immediate need and stories about how the group met an immediate need with or without cash donations.	Immediate needs cash, Immediate needs non-cash, Immediate need examples
Limitations	Things that may have made difficult or prevented the group from realizing mutual aid	Affordance suggestion for social media, Limitations of the group, Limitations of social media
Long-term projects	Projects to address social injustices which are aimed at achieving long-term social support	Assistance (financial), Community resources, Donation management, Education, Feeding community, Long-term projects (other), Police reform, Rent relief
Mutual aid users	Populations represented in the group as well as inequalities within those populations	Serving vulnerable populations, Users, Visibility of inequalities
Online community management	How administrators moderate the online community	Community management, Spam
Organizing structure of group	Preparing for long-term sustainability which includes documentation and organization of initiatives	Advertising, Resources for starting a group, Task allocating, Use of social media

Table 4.1: Descriptions of the nine final high-level themes; names of themes that were incorporated into this paper are in bold.

4.3 Findings

The COVID-19 pandemic ushered in sweeping social changes with little notice, and by mid-March 2020, the areas where our interviewees were located went under lockdown. This prompted almost all of them (16 out of 17) to start their online groups, with the exception of P17, who belonged to a group that existed on a smaller-scale prior to the pandemic. Generally, interviewees expressed that they did not think their groups would be needed for very long, e.g., P7 who said *“Well, we all thought we’re just gonna be doing this for like a month or two, but it turned into a year, with no end in sight.”*, and P4 who did not think that the group should limit who can join to only people in their current social networks, *“I didn’t want my group to end up just being people in my [relatively wealthy] neighborhood helping each other out. I think there’s already groups for that...I wanted to make sure it was accessible [to the general community], especially to people in need.”*

The interviewees told us that people joined their group largely through word of mouth, which in some cases meant that hundreds of members were added with the span of a week. The rapid growth during the initial lockdown resulted in a high level of activity within the groups, both from aid requesters and people offering support. P9 said that at first *“people in our community were just freaking out, like ‘wow, what do we do?’ And so it offered a space where people could find ways to get involved and so that people could have access to resources”*. P7 told us that members joined and began to utilize his group as soon as it appeared on Facebook to facilitate aid and support, and that he noticed ebbs and flows in the severity and number of requests as the pandemic progressed.

It was almost immediate. Within that first month... especially when the rent came due the first time after people were shut out of their work. And then it just hasn’t stopped...there was a little bit of a lull last summer that I’m not really sure about, I think a lot of these cycles are connected to the aid that comes from the federal government. We’ve seen bumps in needs because benefits ran out, or unemployment ran out... - P7, male

As the pandemic progressed towards the one year mark, many interviewees told us that the groups had become embedded into their local communities, such as P1

who recounted how her group “...ended up becoming a group that advocates for the community. A community listening group that was able to have a seat at the table to advocate in different aspects.” At the time of her interview in February, 2021, P5 said that the group she administers “transitioned from physical help when we had full stay-at-home orders more towards financial assistance in the last probably two or three months.” At the same time, P7 noticed that the level of autonomy across members of the group had increased, “I can’t speak to the type of need across the board. I have seen that the community is a lot more organized in autonomous action and helping each other out”.

Within the 13 online groups, four overarching aspects of mutual aid supported the realization of localized disaster relief. Firstly, the groups adapted to changing needs over the course of the first year of the pandemic by addressing *immediately apparent needs*, i.e., providing “first aid”. As interviewees began to see patterns in the nature of requests over time, providing support through member-led initiatives for *chronic needs brought visibility into pre-existing conditions*. Thirdly, both immediately apparent and chronic needs were addressed through various permutations of *generalized reciprocity*. Finally, once autonomy was established enough to support initiatives aimed addressing needs, the groups grew into a space for *building justice into the community*.

4.3.1 Providing for Immediately Apparent Needs

During the early months of the pandemic, interviewees shared how their mutual aid groups supported member’s immediately apparent needs. Firstly, all interviewees mentioned grocery delivery and related food assistance as needs that arose quickly after the first lockdown was announced in March 2020. Many groups facilitated one-off grocery delivery for people who were immunocompromised and couldn’t risk catching the virus.

We have this one lady that I call the banana lady because she needs bananas for her potassium for her medicine, she’s diabetic. So if I need someone to pick up bananas, I can’t ask our food bank delivery person to bring just bananas, you know what I mean? I’ll just serve it up to the community and be like, ‘Hey, I need a delivery for a senior, can

someone do this for me?’ And usually, like two or three people’ll be like ‘Oh, I can do it on my lunch break’ or whatever. - P1, female

Similarly, P6 shared that members who were experiencing financial insecurity in the group oftentimes couldn’t afford the delivery fees associated with grocery delivery services. The group helped such members get groceries by sending able people to get groceries on their behalf and deliver them. P15 quickly realized that the grocery-related needs in the group varied, *“some people needed people to drop groceries, and some people needed people to buy groceries. And so we had to get real savvy about that as well, and asking for that specific need and connecting people.”*

About half of the interviewees (eight out of 17) mentioned that pairing delivery people with those needing deliveries on an individual one-off basis was time-consuming since they had to put out individual calls for support on the group’s timeline or contact many people before someone was able to confirm that they can help. As such, some of them developed programs to streamline the process by recruiting volunteers ahead of time for food deliveries.

We have a food pantry operation. A grocery delivery operation is actually a better phrase for it. We started it a little over a month into the pandemic after opening our group because we quickly realized that was a huge need that was not getting met, particularly folks being unable to pick up food or leave their home. - P9, male

Similarly, as more people joined their group who needed immediate food relief, P12, along with P10 and P11 (of the same group) started a food distribution program in which volunteers signed up to distribute food to a set of families every week. The group also scheduled a recurring community meal as a way to streamline food distribution to serve many hungry people efficiently in Summer, 2020. P12 told us that *“Initially, it was about once a month... we distributed to some families and community members we’ve been working with through mutual aid and at the downtown holding space. Through the summer and into the fall, we standardized the meal as something that we could cook quickly and on-site.”*

Another immediately apparent need in the early pandemic was for personal protective equipment (PPE). Many communities around the United States were

unprepared for a biological disaster and did not have sufficient stock of hand sanitizer, facial masks, or disposable gowns (Jo et al., 2021). Three interviewees (P2, P16 and P17) told us that their groups organized to create or provide PPE for local community members and healthcare workers. P16 used the group's Facebook timeline to collect resources and get the word out about her PPE distribution plans, *"I hit up the community, and I said 'I need your good plastic bottles.' I filled bottles with hand sanitizer and then I went from town to town and said 'Hey I'm going to be in the parking lot of the [gas station]...I'll have hand sanitizer and my mom made like 175 masks by hand.' And we handed those out"*. P2's group organized group members to make fabric face masks for people who worked on the front-lines of the pandemic.

We have a face mask working group that formed the first week that has handed out over 20,000 hand-sewn face masks...They started out donating to health care providers, front line workers, and when that finally eased up and people were getting PPE they expanded to 'just put in a mask request and tell us how many you need.' - P2, female

Many people were presented with financial hardship or insecurity in the aftermath of the pandemic, and online mutual aid groups became a source of grassroots financial support for those in need. 15 out of 17 interviewees allowed for cash donations to take place via aid request posts on the group timeline, and 11 out of 13 of the groups that our members administered quickly started general mutual aid funds and fundraisers to raise money to distribute to affected people. Regarding fundraising, P2 shared that during *"The first couple of months, people were pouring money into this. One of the group members set up PayPal, CashApp, all of the cash distribution software because people were just looking for places to give money to help. Like, 'I can't get out there and do stuff, but I have this money burning a hole in my pocket and if it can feed somebody, what can I do'?"* We moved more than \$45,000". Similar statements were echoed by P4, P7, P8, P9, P12, P15 and P16.

Interviewees shared examples of how their group addressed less-common immediately apparent needs, such as providing relief for ill individuals. P2 told us that a financial support request post that she made to her group raised \$2,000 on behalf

of a member who needed immediate support with bills because she couldn't work due to having contracted COVID-19. P4 said that multiple people who contracted COVID-19 had contacted her through a private message for help, and that she was able to connect the people to resources through the group's network.

I know that people have reached out because they have the virus. There's a woman right now who we're trying to help with some emergency food assistance because she caught the virus. - P4, female

In other cases, immediately apparent needs took the form of helping members celebrate holidays. As the Christmas season approached, P16 realized that many people in her group were unable to purchase gifts for their children. P16 and a few of her friends from the group organized “*Christmas Y'all, where we gave out truckloads of toys to kids who would have gotten nothing and we even had people dressed as Santa going through the trailer parks just randomly handing out gifts.*” Similarly, P4 said that she received private messages on Facebook with requests for help with Christmas expenses, and was able to facilitate aid by connecting the families in need with volunteers who wanted to provide holiday expense support.

There was a family that was asking for Christmas help [via a private message to P4]. I think you'd imagine Christmas help as buying each of the kids a couple of gifts and a tree. This woman [a volunteer] went above and beyond for this other family. She ended up getting each of the five kids multiple gifts, getting the mother gifts, getting them a tree, and getting them connected with resources that they needed otherwise. - P4, female

The mutual aid groups that interviewees administered were important resources for meeting urgent needs that became immediately apparent in the local communities where they operated, such as food assistance, delivery support, PPE creation and provision, support for COVID-positive patients, and with expenses around providing a positive holiday experience for local children.

4.3.2 Meeting Needs Via Generalized Exchange

Mutual aid is built on non-hierarchical, non-bureaucratic organizational structures where members autonomously participate in decision making, and it favors generalized exchange of disaster relief (i.e., aid) as the most efficient means of taking care of disaster survivors (Spade, 2020a). Because of the *flat structure*, user roles are fluid, meaning that a user is not defined by one role throughout the duration of their participation in mutual aid. Each person can take on multiple roles in the group simultaneously or by switching between them based on their own evolving situation; for example by requesting one type of aid, while also being able to offer a different type of aid to fulfill someone else’s request (Knearem, Jo, Tsai, & Carroll, 2021). Interviewees from all 13 groups indicated that fluid roles were common in their groups, *“Most people in our group who ask for support, also give support. Just flat out most”* (P15), *“The majority of the community that is supporting mutual aid is the community who also utilizes mutual aid”* (P6), and *“There is a lot of that crossover people who are getting help when they need it, when they can give, they give help”* (P2).

Sometimes members of the groups were able to facilitate paired reciprocal exchange, i.e., the exchange of resources between two people, similar to bartering or trading. This type of exchange only worked when both people had something that the other wanted. P15 described a case in the group that she administers where a group member posted an aid request indicating interest in reciprocal exchange, *“I need size 4 diapers, and I have size 2 that [my baby] has outgrown. And if you’ve got size 4, I’ll drop you my twos if you need them.”*. However, oftentimes these types of exchange can be limiting in that it could be difficult to find another person with the specific need to trade with. Broadening the reach of the exchange can help to facilitate aid, as P15 mentioned that the posters amended the post to open to generalized exchange as well as a trade, *“Or if you’ve got size 4, I would love those.”*

Interviewees from all 13 groups shared plentiful examples of how members provided various forms of aid to other people outside of the paired reciprocal exchange described above. The group that P6 represented told us that one way that generalized exchange occurred online between group members was through a Google Sheet, *“We have a spreadsheet where community members can go and*

look on that and say ‘Hey, I have that need, and I can provide this’.” For P6, the Sheet was effective because people could make a request and also view all the other requests in one place and coordinate exchanges directly. Generalized exchange also occurred via aid request posts on the Facebook group. Interviewees representing 11 out of 13 groups told us that posts asking for or offering a type of support without any expectation of immediate reciprocity were very common.

A few interviewees, such as P3, P15 and P16, noticed that members frequently received help from someone in the group and then returned the favor at a later time by offering something to someone else outside of what they received. P2 told us that a woman who made a post stating *“I would like to get a hotel room for one night to get a shower.”* is also *“one of the first ones who, if somebody says, ‘I can’t get out to buy groceries’, she’ll say, ‘Well I’m mobile, what do you need? I can bring it to you.’”* Similarly, in the group that P3 administers, there was a woman who posted a request for help with her rental security deposit, and when her need was met, she was eager to help others even though she couldn’t provide the same type of support that was given to her:

She raised enough money to get a place. But then she was like, ‘I feel really bad for having asked for money from the mutual aid group. So I want to focus on getting things and giving things’. So then she’s trying to be like, ‘Hey, my baby needed these things [in the past]. Does anybody have a baby who could use this, or want someone to take care of their baby?’ - P3, female

In other cases, generalized exchange was informational, rather than instrumental (e.g., food or financial). In the group that P9 administers, there was a member who was working as an accountant who offered to help out with tracking the group’s fundraiser donations. In this exchange, the group member provided administrative aid and received from other members *“education and perspective on how other people [who are less financially well-off] live their lives.”* These types of informational exchanges also occurred when group members posted a request for information, for example, affordable housing (P2) or local food resources (P1), and received from members information or advice related to their specific situation. It also worked the other way around, as members who had information that

they thought could help other people created posts that offered information and practical advice about signing up for government aid such as food benefits (P1, P2, P15), school supplies (P16) and other household items (P4, P8).

One's time and expertise is also exchanged in online mutual aid groups. In this case, P10, P11 and P12 of the same group told us that exchange can function as giving of one's time or expertise in exchange for something else. P10 mentioned that some students in his community who were *"experiencing food insecurity and other symptoms of poverty... receive resources from us, and they [in exchange] organize initiatives with us and drive a lot of our projects."* Other interviewees told us that group members who utilized the group for aid when they needed it would give back by joining long-term initiatives, such as planting vegetables for the community garden (P4) or fixing a damaged little free pantry (P7).

Viewing posts where generalized exchange took place in the comments spurred un-involved members to offer their own resources to other people who needed them. For example, four out of 17 interviewees told us that they observed that when members of the group posted about an aid distribution effort, such as a clothing or food drive, it furthered other members who were not involved in the initial effort to offer to help with future distributions. The group that P16 administers hosted a winter coat drive where a member created a post with a request for lightly used coats, and then once they had accumulated enough, the member created a new post to advertise the time and location for coat distribution. She told us that many comments on the post about the date and time came from people who were not involved in the initial coat drive, but wanted to give clothing items to other people, *"People started to be like 'Well I've got some kids clothes, do you think somebody might need those?' So they bring me the clothes and I take them home and wash them and give them back out to somebody else."*

In another example of generalized exchange, group members sometimes started a thread by posting an offer of aid and would give what they had to share to the member(s) who commented that they could use it. In another example P4 said that *"They [people who were helped previously] are reaching out to me [over a private message], and they're like, 'Hey, we have these canned goods, and we have this extra food that we can't use. Can somebody use it in the group?'"*. As an administrator who approved posts for the group, P4 told us that in these cases

she was usually able to direct the person to

Finally, as an example of how exchange built member's capacity to care not only for themselves but also for others, P15 shared a story about a couple who initially only posted to request aid because they did not have resources to share, but once they were in a better financial position thanks to the help they received from group members, they desired to reciprocate by passing on goods that they didn't need to other people.

So [the couple] would post [aid requests] regularly...But they also began posting the things they had extra. People [from the group] would drop things off to them, and they [the aid providers] would give them a bunch of extra stuff, sort of without asking if they needed it. And some of it the couple couldn't use. And so the couple would then post, 'we have these things, we have gloves that we can't use. Does anybody need these gloves?' - P15, female

These examples of how exchange was facilitated in the groups showcases various permutations of *generalized exchange*, i.e., the aid requesters who accept aid are oftentimes eager to then help another person, whether that be by providing goods, information, expertise or their time. Additionally, members offered items that they no longer needed to anyone, even if no one first posted a request for the items. These examples suggest that generalized exchange, i.e., the give and take by various non-paired members of the community leverages *existing community assets* to cover member's needs, which supports the sustainability of generalized exchange over time.

4.3.3 Supporting Chronic Needs Brought Visibility to Pre-existing Conditions

Over time, all interviewees began to see patterns in the types of aid being requested in their groups. For those new to community organizing such as P5 and P15, administering their mutual aid group brought awareness to themselves and to others in the group about various chronic community needs that pre-existed the onset of COVID-19 e.g. and needed to be addressed in a timely manner. They noticed this

through viewing many similar aid request posts that group members made. Others such as P1, P2 and P16 were already aware of the types of chronic needs in their community because they were plugged into civic initiatives prior to the pandemic. As one example, food insecurity pre-existed COVID-19 but was exasperated during the pandemic (Knearem, Jo, & Carroll, 2021a), and was prevalent in all 13 groups. The other most common chronic conditions included housing/houselessness (11 of 13 groups), and difficulty in the acquisition of everyday household goods (12 of 13 groups). All interviewees mentioned that their groups worked to provide as much support as possible for needs that arose from chronic conditions by first recognizing that the need exists, and then organizing and developing grassroots initiatives to address the need on a sustainable and long-term basis.

The chronic condition of large-scale food insecurity came to light in all 13 groups that the interviewees represented due to the massive amount of posts that group members made related to food aid requests or posts that informed community members when and where food would be distributed in their area. P1 had prior experience in community organizing so she wasn't surprised when her group's Facebook timeline saw numerous food aid request posts.

Food insecurity was always a problem. Our downtown is a food desert. That single mom has nowhere to shop except bodegas, which are generally overpriced and don't have access to fresh produce. So when the pandemic started, and people were afraid to leave the house, or they weren't able to work and buy food, whatever it was, it was food that hit us the hardest. - P1, female

To address chronic hunger in her community, P1's group created a food insecurity task force, which included developing relationships with local restaurants that were struggling to survive the pandemic to provide hot meals for COVID-positive patients and others in the community. This led to a movement to support local businesses, which was advocated via posts about businesses who really needed customers at a given time. Similarly, P2 realized that her community would have a surge in food aid requests when schools closed due to COVID-19 restrictions. She said that group members worked together to address this issue by finding local programs and filling in any gaps with their own resources, e.g., food from their

kitchens or buying supplies in bulk, *“The big impetus was ‘the schools are closing and about 35% of [city name] school kids rely on their school meals...and without school meals, they are going hungry.’ It took less than a weekend for the group to come together and figure out how they were going to feed several 100 kids.”*

P7, P13, and P16, representing three groups, developed a program for community members to donate food directly to those in need through bringing it to *community fridges* or *blessing boxes*, which are placed at locations that the groups determined have high levels of food needs. P16 said volunteers from the group she administered *“fill them as often as we can and that’s what we urge all of our community members to do because people from all walks of life use those things.”* The group that P4 administered organized an initiative where people can sign up for a home-cooked meal to be delivered every week by a volunteer from the online group. Some members of the mutual aid group used it to organize efforts at addressing chronic hunger, for example, P2 said that a couple group members *“cook up a couple dozen home cooked meals and hit all of the [houseless] congregation spots to make sure people get at least one hot meal this week.”*

Other interviewees, such as P16, P4, and P8 and P9 of the same group connected people undergoing chronic food insecurity with other grassroots organizations in the community so that support can reach as many people as possible. P16 posted to group members to say that if they know someone who is going hungry, to refer them to the group administrators who will then reach out to their networks of community connections to find the most suitable resources. Group members in the group that P4 administers crowd-sourced a local resource document for food support that they put into a shareable calendar. People who knew that they would need food support *“Can easily just look and say ‘I need food tomorrow’ and see all of the events that are happening.”*

Next, housing and houselessness was similarly chronic in the interviewee’s local communities. Interviewees representing 11 of 13 groups mentioned that group members posted regularly about needing rent relief, experiencing housing insecurity or houselessness, which led to their and other member’s awareness of housing as a chronic need worsened by the pandemic. P5 became aware that lack of affordable housing, an already huge problem in her community, had worsened from approving posts in her group from *“people who are facing eviction...there’s been*

some really dire situations where we're trying to help someone find a van to buy because they've been living in their car and it broke down". P2 echoed this concern stating that she became aware that many public school students and families are on the verge of houselessness, "they may be staying with family, they may be couchsurfing. Homelessness is a growing problem...it's absolutely increased since the pandemic began...or maybe it's just become much more visible." Houselessness and needs associated with it became visible when P3's group members were "frequently asking for things because they actually have become houseless in the past year, for example tents, mats, food that they can carry and eat right away, hygienic goods, access to showers or a bathroom or a place to wash clothes."

Many interviewees exercised their creativity with proactive outreach measures to share resources with people who may be experiencing housing-related issues. P11 explained how the group shared information to fight an unfair eviction, *"we put flyers about [housing relief] in the grocery bags [for the grocery delivery program]. So it's like...here's what to do if you're having a conflict with your landlord and the kinds of help that we can provide to help protect your rights as a tenant."* Other times, they will refer rent support request posts to other grassroots organizations, such as P7's group who connects posters with an organization that specializes in tenant's rights. Sometimes, if members make a large financial request to pay their rent, the mutual aid group tried crowd-sourcing funds to cover a large bill through Facebook or connected them to other local organizations that can provide something that the group is not able to do.

We're all-volunteer and we're on a small scale, so in those instances we use our social media to share their story, so that hopefully people can donate to them directly...Or maybe there's a local rental assistance program that will pay that back rent that's operated by a nonprofit or the city. We'll do some digging and try to connect them with things that a mutual aid group might not be able to help with in the same way.

- P17, male

For unhoused people, the mutual aid group that P3 administers became a networking hub to connect people without Internet access due to houselessness to vital supplies.

There's a few people who are down there [at a houseless encampment] who have access to their smartphones or devices or social media. And they'll say 'Hey, somebody here needs a cot' or 'We are looking for two tents for next week'. And then someone will bring it down. There's a network of folks within that [houseless] community that do exchanges or get resources for [other people experiencing houselessness]. Like messengers. - P3, female

In P3's community, outreach efforts through online mutual aid also helped with personal hygiene, as mobile showers were installed at encampments by volunteers from her online group. While these initiatives may alleviate some of the chronic needs around housing, many interviewees shared that housing-related need continued to be one of the biggest needs that their group sees.

Accessing or acquiring everyday household items was another common thread that arose in almost all (12 out of 13) of the groups. In the initial weeks after the pandemic started, such items were related to the pandemic, e.g., access to facial masks (P2) or hand sanitizer (P17), however the interviewees said that requests for non-pandemic related essentials began to pour in as their group grew. This suggested that there was *"a lot of needs slipping through the cracks"* (P1) that were under-resourced prior to the pandemic. Five interviewees mentioned that the switch to remote schooling in their area led to an increase in aid request posts seeking help getting Wi-Fi into their homes and procuring Internet-ready devices for school children. For example, P1 said that not only is procuring these goods challenging, but many kids *"couldn't get to the school in time to pick up devices, even though the school had devices, because it was only during working hours and we still have a lot of parents out there working."* Interviewees noted that most groups (11 out of 13) received posts from members requesting clothing, coats, pet supplies and other household items. Viewing these everyday household item request posts pointed out to the interviewees how easily available items were difficult for some members of the group to acquire. P6 became aware of such needs through approving requests for help getting small items, such as tissues.

Somebody requested Kleenex on the next drop off and I was like, 'alright, I get that'. Like sometimes you just don't want to blow your nose with

toilet paper. Or paper towels or a handkerchief or whatever. So yeah, folks have other needs that aren't met by the traditional means. - P6 female

To support group members acquisition of everyday household items, interviewees created various initiatives aimed at not only providing items when requested, but making them easily and readily available for all of those who cannot otherwise access the items. The group administered by P13 and P14 used their online forum to spearhead *free stores*, while P16 worked with group members to develop *free yard sales*, which were on-site locations where people who needed items could go and pick them out. P13's group's free store opened a few times a week and carried hygiene, baby-care, clothes and other essentials that were donated by the community. P16 of the group that was also was involved in organizing a winter coat drive and a school supply drive, explained that the free sales organized through her online group became a hugely successful initiative for getting supplies to people who needed them.

Every site will have a lot of stuff that's absolutely free. Household things, clothing, shoes, books, and we've got donations so that we could go get brand new hygiene items. We've got deodorant and shampoo. When you come and get that, you can come get all of it for free... We're not going to ask you to prove your income. We're not gonna ask if you got help from somebody else before you came to us, or anything like that. You can just wander right in, and hopefully find some things you need. - P16, female

Other groups addressed the chronic need for everyday supplies through the online forum itself. P8 and P9 of the same group told us that they created threads on the group's timeline for the peer-to-peer acquisition of household goods. P8 talked about the group's "*community support thread. Whether that's a 'hey, my fridge broke, does anyone have one?', or 'hey, I want to give away this couch', that kind of thing. We encourage people to post those things, because we also want to encourage direct giving in that way, or direct aid and wealth sharing.*" These threads were pinned to the group's timeline, and were intended to be persistent locations for people to seek help from others.

Chronic community issues became more visible than they were pre-COVID through the online mutual aid groups due to the number of aid request posts specific to food, housing and everyday household items. The groups innovated a number of initiatives and quick-fixes to address long-term chronic issues which were able to facilitate proper humanistic care to those in need.

4.3.4 Building Justice into the Community

In 5.2, we presented the top three chronic community conditions that the interviewees told us became visible through the high volume of aid request posts. 5.2 highlighted how the groups provided aid to vulnerable people in a timely, efficient manner. In this section, we turn our focus to how groups initiated members into mutual aid as well as examples of justice-centered work that went beyond providing for needs. Addressing inequality and working towards an equitable future is a core tenant of mutual aid (Gould, 2018). All of our interviewees said that because the groups they administered were *mutual aid* groups, the members should become familiar with and enact the core tenants of mutual aid while interacting with others in the group.

Starting with the interviewees who were administrators, nine out of 17 were unfamiliar with the concept of mutual aid before starting their online group. As such, these interviewees found it important to educate themselves on the core tenants of mutual aid as well as how to start a mutual aid group. When P2 started her group, she *“knew very little about the mutual aid concept at all. We actually began with the pandemic...I’ve been educating myself as I go...because we use Mutual Aid [city name], we attracted several groups of local anarchists who were very interested in informing us what mutual aid is and the history of mutual aid, which I find fascinating.”* By happenstance, P4 attended a workshop put on by a group called Mutual Aid Disaster Relief prior to the pandemic. She credits the workshop and a few other more experienced organizers that she knows with helping her to develop the group’s identity as a mutual aid group. Others such as P15 and P16 utilized existing resources about how to start a mutual aid group, such as Bigdoorbrigade.com, which has a guide for starting one.

Equally important to the interviewees who mentioned that their group was

involved in justice-centered work was providing education about mutual aid to online group members. Groups such as that administered by P8 and P9 grew quickly and as such most of the new members were unfamiliar with mutual aid; rather they were drawn to the group by the idea of neighborly help during a crisis. To address this, most of the mutual aid groups created a set of guidelines for members to follow based on the overarching principles of mutual aid. Partially, this was to help administrators with basic online community management, however most of the groups went beyond the mere dos and don'ts that they put in place *“to keep the group functional”* (P8). P4 said that in her group, a lot of people, including moderators and community organizers, didn't know what mutual aid was, so it was important to put the information out there for everyone. For example, P7 used the “About” header on his group's Facebook page to include guides filled with information to help orient group members who were unfamiliar with mutual aid into the practice, *“The first one is ‘What is mutual aid?’, then ‘Monthly [group name] updates’, ‘Affiliated groups’, ‘Accessibility’, and ‘This group is anti-racist’.”* Similarly, P16 thought it was important that members abide by the mutual aid principle of being *non-judgemental* to people's personal situations, so she pinned a post to the group's timeline that said *“If you can't help, move on. We're not here to decide who deserves help and who doesn't.”* The group P12 represents along with P11 and P13 went a step further and created a leaflet on mutual aid to hand out to people who came to their in-person events that explained who the group was and the group's stance on social-justice issues because the interviewees envisioned the group as activism-centered, which indicated that they had *“different aims than something that was just started during COVID and only about COVID.”* Once education on mutual aid was made available to members, and other community-based infrastructures were in place to provide support to people experiencing high levels of need (e.g., 5.1 and 5.2), most of the groups began to think about how to leverage their group to be a force for positive social change through justice-centered work (i.e., social activism). For example, while P17's group held a main goal of providing disaster relief to affected community members, he also felt it was important for the group to model the future society that they wished to see.

At the same time that we're challenging these oppressive institutional systems, mechanisms of society, we want to be building up self-organized

counter institutions, so that we're not waiting for 'after the revolution'. We're building the groundwork so that we're relying on each other and ourselves in ways that are transformative, and also prefigure that world that we're trying to create. - P17, male

Interviewees who represented 12 out of 13 groups, specifically mentioned that their groups were involved in organizing justice-centered work which centered issues such as racism, tenant's rights, and hunger that affected the most vulnerable members of their local communities. This occurred in the groups in two main ways, through *informational initiatives* i.e., building awareness and education, and *instrumental initiatives*, i.e., activities based in direct action.

Firstly, the majority way that informational initiatives were undertaken was via public posts on the group's timeline. Conversations took place in threads related to posts about a topic related to social justice. As administrators, interviewees in some groups (e.g., those administered by P3, P13 and P9), frequently created posts about a justice-related topic to engage members in a discussion about how the issue affects them or others in the community. This was done to raise awareness that chronic issues existed in the community, and to empower people to become active participants in social change. For example, tenant's rights were a big issue in the group that P3 administered. She told us that many people were facing eviction over their inability to pay rent due to COVID-19 related shutdowns. She wanted to empower people facing eviction so she frequently used posts to her group's timeline to engage members in discussions about how to organize themselves to fight back when faced with an eviction notice during the no-eviction period which was in affect at the time of her interview. In other cases, interviewees approved posts related to justice-centered work and social activism from group members. P7, whose community was reckoning with racial justice in the wake of the Black Lives Matter movement in Summer 2020, told us that members created posts about racial justice to open up discussions on racism in the community. To him, by approving these types of posts, he was showing the community the values of the group, and where the group stands on hot issues, "*people are getting information out... There's been a lot of posts where one of us was like, 'Hey, here's an issue and here's where we stand' as a form of political education.*" In the group that P2 administered, members created posts which educated people on current issues e.g.,

the under-counting of unhoused people since the pandemic began by city officials. She told us that these types of posts generated lively discussion in the comments, and prompted some members to create an autonomous initiative to help out, which was aimed at pressuring the city to *“put up temporary shelters for COVID-positive homeless people”*.

In contrast to the informal nature of post-based discussions, other informational initiatives included organized events. For example, live discussions with a subject-matter expert on issues of social justice such as racism, colonialism, and access to healthcare sometimes occurred within the online groups. These events were usually free and were advertised through posts to the group. Group members could register in advance and would be able to join the discussion through a video conferencing link. As one example, P7 hosted a *“chill and chat event with the [name of local multicultural organization] where we had local [Black, Indigenous, People of Color] BIPOC activists talking about issues that are important to them.”* He told us that since many of the members of the group initially joined because they were experiencing a lot of uncertainty around COVID-19 rather than because they were already initiated into activism, these events provided a new perspective on society.

Some interviewees, such as P1, P2, P13, P14 and P15 mentioned that their groups worked alongside existing social justice organizations (i.e., activist organizations), and would often allow the outside organization to post their own justice-related events that may be of interest to the group members. These events were usually intended to provide timely information on issues that were affecting the community, such as addressing food insecurity (P1), racial justice (P14) or prison reform (13). P2 mentioned that sometimes posts from other activist organizations can ruffle feathers with the group membership if the topic is controversial or based on a hot topic, such as the Defund the Police movement that arose from the the events surrounding the Summer 2020 Black Lives Matter movement.

We have the local Defund [city name] Police Department group, they are their own organization, and they frequently post in the group and share their information or events within the group. We always end up with a bit of a hassle in between people who are like ‘but when you need the police...’ and other people who are like ‘you never need the police.’

- P2, female

A few interviewees (e.g., P3, P12) mentioned that they valued the justice-centered educational components of the group they administered, as this differentiated the mutual aid group from other online groups that only focused on COVID-19-related support. P12 said that the group she administers with P11 and P12 posted articles about mutual aid principles to distinguish the group as *mutual aid*, rather than solely COVID-19 assistance. P2 said that the justice-centered work in the group she administers was a key differentiator between the group and the local charity groups on Facebook which provided COVID-19 support.

Overall, interviewees felt that learning about and providing information to group members about mutual aid, facilitating discussions around justice-related topics, and highlighting events from other activist organizations were important and necessary activities in addition to addressing immediate needs.

Next, the mutual aid groups were involved in a variety of *instrumental initiatives*, i.e., justice-centered, action-oriented activities aimed at building community justice through social change. Interviewees talked at length about the community organizing initiatives which were aimed at changing the circumstances that led to chronic community issues (see 5.2 for examples of some of the chronic issues). The strength in numbers of a groups' online membership was one way that the mutual aid groups supported social change. For example, P7 related a story about what happened when someone in the group he administers shared a post about a local school board president who said something racist on an online platform: "*He basically had to step down within days of that. We were not the only reason, but things like that have happened, where people were upset about something and immediately it was addressed in one way or another because of the volume that we're able to speak out on our platform [the Facebook group].*" As another example, members of the group that P16 administers organized through the group and then met in person to protest a mass eviction. While it didn't prevent the residents from losing their homes, it did bring the issue of forced evictions to the forefront in the local community.

I keep mentioning housing justice because there's this particular movement, this particular action that's going on right now...We have three

trailer parks in this one town that are closed or hiked their rent to ridiculous prices in the last year. During a pandemic, they've told their tenants that they have three months...to just completely uproot their life...housing justice has become a big forefront issue for the group. -

P16, female

Group members hosted in-person gatherings to reach out to people outside the group to raise awareness about issues of social justice. A few members of the group that P10, P11 and P12 administer decided that they wanted to feed people as an act of social activism. They began to offer a free community meal to anyone in the community who wanted it at a visible location near the city hall so that the issue of food security would be visible to local lawmakers as they walked by. P12 told us that the motivation behind this was *“preparing food in conversation about political issues and access to food as political.”*

In another example of a small group of people coming together to enact the change they wished to see, P2 said that the group she administers was the online home base for an autonomous unit of young men who wanted to highlight what they believed was the unhoused community’s right to live with dignity within the local community. This involved making and installing sanitation systems with water taps and hand soap dispensers, which they saw as a way to challenge people’s notion of who was accepted as a member of the community. This visible effort to improve living conditions in the areas where many unhoused people congregated not only brought dignity to unhoused people, but also functioned as a signal that the community was welcoming to all people, including those who were between shelters.

Engaging in outreach with unhoused neighbors was a priority for the group P9 administered because he felt like unhoused people’s voices had been erased from community decision-making due to their status as unhoused. He shared a story about how a couple of group members who met through the online group volunteered to livestream city council meetings using their own device at encampments around the city so that unhoused people can be aware of what is happening, just like other community members who have easy access to Internet-enabled devices.

Across the groups, activism around police reform was frequently organized and initiated by members of the online mutual aid groups, largely in response to the

policing issues brought to light by the 2020 Black Lives Matter movements. In addition to informational initiatives discussed earlier, groups organized to advocate for reform within their local police departments. In the group P1 administered, one member thought the community would be better off if police could be held accountable for interactions with citizens. She utilized the online group to spearhead an effort to get *“a public hearing for police reform to have body cams and make the Use of Force law a little less vague...they [the police] just got body cameras last week.”*

P10's group took a more direct approach to police accountability when the three administrators (P10, P11, and P12) as well as a few group members created a community cop watch program. P10 told us that there have been issues in the past of local police using excessive force in situations where it later was deemed unnecessary. He said that cop watching is a form of intervention in police stops and such rapid response intervention can prevent the police from engaging in excessive force. Another motivation of the program was *“to show that we don't need the state or the police in order to keep ourselves and each other safe, that we can bring transparency to the [local police department] and other police forces in the area.”*

Interviewees shared how they thought the initiatives to bring justice to the community had influenced their group members. P16 was positive about the impact the group was making on member's everyday lives: *“These people are finding power, just like my group is finding power. So I think that people on the bottom of the capitalist heap are going to continue mutual aid like we've been doing it...we're still going to be out here. I'm hopeful for that, and I think it'll happen, and I have no doubt that it will.”*

P9 explained that the group he administers was recently able to switch the focus from fulfilling immediate needs to engaging in activist-oriented education because the group had worked out logistical infrastructures to support the most common aid requests.

Now that we have an audience, we've started shifting back towards, 'Y'all need to understand what dual power is and why these things are important. You know, why? Why are we focusing specifically on the undocumented community? Why have they been left out?'...I would make posts like, 'Hey, I'm seeing a lot of people post about rent, like, let's

talk about landlords, let's talk about the landlord class, let's facilitate this discussion here.' - P9, male

However, not all interviewees were as focused on building justice as they wished they could be. After being open as a group on Facebook for approximately one year, some groups were just beginning to focus on issues of social justice. P7 explained that the group he administers was still largely focused on addressing immediate needs but *“At some point, we’ll be out of this crisis mode. And we can work on organizing people, in terms of like, political education and building more radical alternatives to the traditional nonprofit sector and business sector.”* Others such as P15 thought the best course of action for the group she administers is to continue to focus on taking care of immediate needs, since her area has a long history of economic poverty which was worsened since the pandemic. She lamented that *“the group] is just not at the place to be able to...focus on organizing the people for their benefit...quite yet. We wanted to keep our small group focused on meeting the immediate needs during COVID. So it was such a difficult thing to have to have that conversation of ‘we want to offer these opportunities, we want people know this is a part of mutual aid’, but also, this is where we are right now.”*

Building justice into the community is a core tenant of mutual aid, and one that the majority of interviewees felt was important to build into the groups that they administered. This ranged from educating people about mutual aid and bringing them into the practice through group guides, discussions and events to organizing instrumental initiatives aimed at bettering justice-related issues that were embedded in the community. After the first year of COVID-19, many groups had sustained their ability to support aid for immediate needs, and could turn their focus towards justice-work.

4.4 Discussion

The COVID-19 pandemic was a focusing effect on the vitality of local communities. Immediate needs and other chronic social conditions that were previously masked by community support structures were exposed when the arrival of the pandemic disrupted services and many social service support structures fragmented or collapsed. In the wake of the initial stay-at-home orders in March 2020, millions

of people had hours reduced at work or lost their jobs when businesses closed to prevent the spread of COVID-19. As such, social services were inundated with skyrocketing applications for unemployment, food support and more. Simultaneously, local citizens jumped at the chance to help their neighbors navigate the uncertainty around the “new normal”. As such, mutual aid bloomed in the initial days of the pandemic, as online groups were created to source community-based disaster relief that did not need to rely on overwhelmed social services.

We identified how online mutual aid groups facilitated aid for immediately apparent needs in the group as a form of community “first aid”, which was intended to help aid requesters get what they needed in the immediate short term. Group members engaged in *generalized exchange*, i.e., reciprocity without the expectation of an immediate return, which helped the groups to be limber in taking care of each other’s immediate needs. The themes in immediate needs which became apparent to group members highlighted underlying chronic community issues, for which the members started organizing initiatives for a more sustainable flow of aid than scrambling to fill immediate needs could do. Even during extended disasters mutual aid went beyond immediate disaster relief, as evidenced by the online group’s efforts in social-justice education and work.

From the findings, we consider the synergy of generalized reciprocity in the group as a basis for further developing community capacities through the lens of *coproduction* i.e., E. Cahn (2010); Ostrom (1996). We then discuss the *Mutual Aid Hierarchy of Community Needs* as a model to explain the stages that mutual aid disaster relief went through over the course of the first year of the pandemic, inspired by Maslow’s hierarchy of needs (McLeod, 2007). Finally, we consider the strength of mutual aid with respect to common conflicts that can underly aid propositions, i.e., the stigma often associated with being “in need” and the bureaucratic structures which can stifle innovation in the delivery of disaster relief.

4.4.1 Coproducing Community Care Through Generalized Reciprocity

In Section 5.2, interviewees shared examples of generalized exchange for immediate need relief that took place in the online mutual aid groups that they administered.

These exchanges represent *generalized reciprocity*, which is gift giving without the expectation of an immediate return directly from the recipient (Carroll & Bellotti, 2015). The practice of generalized reciprocity can expand capacity by increasing the volume, velocity and efficiency of exchanges by increasing the flow of resources through networks (Dutton & Ragins, 2017). In contrast to basic reciprocal exchange which is transactional in nature, generalized reciprocity is *relational*, meaning that engagement in generalized reciprocal exchanges builds social ties within a group. Over the long-term, it can bring elevated trust and greater connectivity and cohesion within a group (Baker & Dutton, 2017; Carroll & Bellotti, 2015). Because there is no expectation of return, generalized reciprocity eliminates the force of indebtedness. Indebtedness in transactional interactions changes the interaction from one between equals to one where someone is indebted to someone else, which is an imbalanced relationship.

Rather than the imbalanced relationship that occurs between givers and takers in transactional exchange, in coproduction, people collaborate with each other and through such collaborations, they recognize that the other party is essential to the success of the collaboration. This notion of generalized reciprocity as a *relational exchange* rather than a discrete transaction has been identified as one of the internal logics of *coproduction* (Glynos & Speed, 2012). Coproduction is the act of two or more parties working together to reach a collective outcome. Coproduction is more than simple collaboration towards a stated goal, such as addressing an immediate need, in which all parties do not need to hold the same end goal for the collaboration to work. Rather, it is a model for realizing public service provision which goes beyond giving and receiving. The synergies of human capital are realized through an equal stakes relationship between all people involved in the activity (E. Cahn, 2010; Ostrom, 1996). In particular, the role of “recipient” transforms from a traditionally passive role in service provision to an active role (Bovaird, 2007). In coproduction, there is no sharp boundary between providers and recipients. Instead, the roles of “initiators” and “joiners” supplement and extend the traditional service roles of provider and recipient (Carroll, Chen, Yuan, & Hanrahan, 2016). An initiator commences the service provision activity and the joiner takes interest and agrees to participate. These roles are reciprocal and symmetric, meaning that initiators and joiners work in tandem to enact the service. Prior

research suggests that when activities are coproduced rather than collaborated on, participants are more effective agents of change (Boyle & Harris, 2009), because engagement in coproduction enables each person to achieve a mutually desirable outcome. Coproduction is based on mutual care, in that all involved parties have mutual goals, whether it be improved policing (Ostrom, 1996), achieving a high level of patient health through patient-centered healthcare (Glynos & Speed, 2012) or creating efficient emergency management (Díaz, Carroll, & Aedo, 2016).

The give and take without expectation of return inherent to generalized reciprocity builds trusting relationships between members of communities (Carroll & Bellotti, 2015). Since the exchange is not transactional between two parties, people involved in generalized exchange have to trust in the system. Likewise, in coproduction, no one is solely producing or receiving; rather, all parties are cooperating and contributing to the shared goal, which also develops trust between members. In basic exchange, the transaction ends once the receiver gets something from the provider. However, if all parties take part in both production and consumption, then everyone has to hold trust that their partners have the capacity to produce and will pull their own weight, which expands trust to the whole system. A coproduction basis of interaction builds trust which can lead to future participation due to the trust developed between partners. This type of trust-building is key to a sustainable societal dynamic and thus coproduction of disaster relief within the local community can form and grow trust between members that can sustain beyond crises.

4.4.2 The Mutual Aid Hierarchy of Community Needs

The activities comprising mutual aid were not constant throughout the duration of the first year of the pandemic; rather, our findings suggest that online mutual aid groups let their communities' needs guide their focus. Even so, similarities emerged across the groups, which suggest that even though the specific type of need may vary by group, all of the groups went through similar evolutionary phases as facilitators of disaster relief. In Maslow's hierarchy of needs, an individual's basic needs (e.g., food, shelter) are represented at the bottom of the hierarchy, and must be satisfied before individuals can attend to needs higher up with the end goal

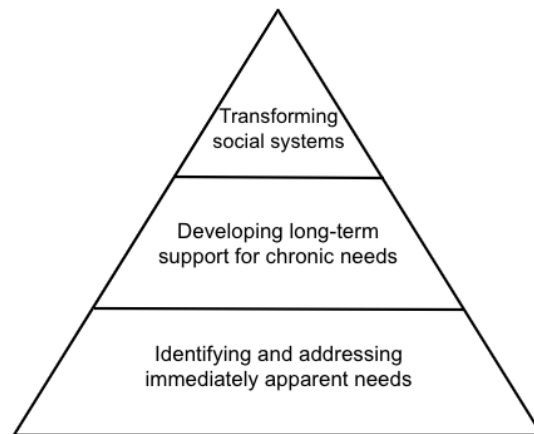


Figure 4.2: The Mutual Aid Hierarchy of Community Needs.

of self-actualization (McLeod, 2007). Based on the findings from the mutual aid group administrators, we consider that community-based disaster relief through mutual aid could follow a similar model. In order to achieve the highest level of community-based disaster relief, i.e., the transformation of social systems so that immediate needs bred of chronic community issues are reduced, first mutual aid needs to address the basic needs of community members by helping their most vulnerable get to a place where physiological needs are met.

The mutual aid hierarchy of community needs comprises of identifying and addressing immediate needs at the bottom layer, then developing long-term support for chronic needs in the middle layer, with transforming social systems comprising the upper-most layer (see Figure 4.2). This represents a shift towards less concrete and more ambitious systemic and symbolic goals.

4.4.2.1 Level One: Identifying and Addressing Immediate Needs

In Section 5.1, *immediately apparent needs*, interviewees recounted how group members exchanged disaster relief amongst themselves through generalized exchange to address immediately pressing needs of others in the community. The initial aim that interviewees had for their online groups was to help community members deal with the challenges brought on by COVID-19, and aid requests were part of that paradigm which demanded attention from the group. Posts asking for help with immediate needs served no other purpose than to alert members that aid was

needed by the original poster. Generalized exchange builds trust because aid receivers don't necessarily know their benefactor, but they know that the resources are from the local community. The aid receivers can then provide support to someone else in the community. As such, these relational exchanges build collectiveness into the community. Generalized exchange also makes support successive and therefore sustainable within groups.

4.4.2.2 Level Two: Developing Long-Term Support for Chronic Needs

Once group members realized that many immediate needs mentioned in aid request posts were actually representing chronic issues within their community, they began to organize initiatives to address those needs. Interviewees shared how members of their group who got to know each other through previous interactions, e.g., responding to an aid request or engaging in a discussion thread, then decided to form autonomous working groups which created initiatives to help people on a larger scale. As support becomes persistent, community members can see that the community has capacity beyond a series of acts of generalized reciprocity. Long-term initiatives become embedded into the community as a *community practice* in place of previous efforts aimed at finding or addressing immediate needs. Due to the persistent nature of long-term initiatives, they can become a way of relation to others that constitutes the community. In other words, this level provides additional community coherence since it involves the wider community, rather than just those members who are engaged in generalized exchange.

Addressing chronic needs that may be systemic or embedded in community culture, such as rural poverty or food insecurity amongst recent immigrant populations, requires both personal commitment, trust and a high level of belief that one's community can come together to be successful in addressing the root causes of chronic needs. Such beliefs embody *community collective efficacy* (Carroll & Bellotti, 2015; Carroll & Reese, 2003), which can arise from interacting with other citizens through online disaster relief groups (Knearem et al., 2022). The initiatives such as community gardens or free yard sales highlight community capacities as they were visible outcomes that both served the community and were a tangible example of the community coming together for disaster relief. Such larger-scale initiatives could be more efficient providers of aid for large groups of people who

need the same thing, than if each individual continually had to post an aid request. For example, getting a weekly grocery bag of food delivered through a food program is much easier for a person in need than making an aid request for groceries and hoping someone will volunteer to help every week.

4.4.2.3 Level Three: Transforming Social Systems

Once online mutual aid groups that were able to satisfy lower level needs, i.e., immediate and chronic needs, members began to think about their responsibility towards their community and the others living in it in a more abstract way. This kind of thinking represents a fundamental shift from concrete disaster relief to *actualizing* one's vision of their ideal community. In the third level, people consider the issues affecting their local community from the perspective of a *designer*, rather than as an actor who cannot enact change. People begin to consider their own role in systemic inequality, reflecting on their responsibility towards others in the local community and how the way that communities conduct themselves can be a vehicle for systemic injustice. The initiative aimed at building justice into the community that were organized by members of the mutual aid groups can be seen as attempts to realize a collective vision for their local community.

Thinking about the local community as an abstract system represents a higher order of thinking than the level of reflection required to react to one's own individual challenges. By reacting to the system, people are able to collectively consider what their ideal social justice may look like and how they can get from where they are to where they would ideally like their society to be. Such initiatives born of collective reckoning with social justice can hold massive impact on local communities, regardless of whether or not they are the "right" or proper solution to the problem for the local community. For example, citizens of Minneapolis, Minnesota were recently asked to vote on a measure which would replace the city's police department. This measure was a product of the police reform movement sparked by George Floyd's death in 2020 (Yancey-Bragg, 2021). Although the measure was not adopted in the end, that it was put in front of voters at all brought widespread community reflection and discussions about systemic racism in policing to the forefront of national discourse.

What matters most at level three is not whether the justice-work initiatives

which were brought up or organized through mutual aid groups are the “right” solutions for the local community; rather it matters that people have arrived at this level of thinking and believe that themselves and others should be thinking about and searching for answers to chronic community problems. It represents *collective actualization*, whereby the community, being satisfied in their basic needs, can now find motivation in other higher ways, striving for potential beyond what is currently imaginable (Maslow, 1967).

4.4.3 The Strength of Mutual Aid

The core values that guide mutual aid differentiate mutual aid activities from other forms of community-based support. While there are additional values, see (Spade, 2020a), we introduce the values that posit mutual aid as an empowering force for inclusive aid delivery. Most prominently is the value of *solidarity not charity* which positions all affected people as survivors who share power equally amongst themselves, without a clear line between givers and receivers of aid. Another relevant value to online disaster relief is *self-determination*, where the people experiencing a crisis are the most important authority on their own situation, and should have control over the flow of material resources. Rather than passively waiting for an unaffected party (i.e., a government agency) to authorize resources for disaster relief, mutual aid holds that survivors feel empowered to direct the course of aid delivery. *Autonomous direct action* recognizes that sometimes affected people have to take action during a disaster, without waiting for permission from authorities. Mutual aid groups enact these values through non-hierarchical and non-bureaucratic structures, with aims to develop individual and community competence to resolve their problems, ideally without dependency on external organizations. Unlike charities and government-sponsored social welfare programs, mutual aid groups do not employ a one-size-fits-all model; rather they favor flexibility in the customization of disaster relief to the demands of the community, and to changing course as new demands unfold.

The way that groups in this study embodied these values depended on the local context in which the group was working. While almost all of the groups started in the initial days of COVID-19, as time progressed, each group iterated its’ course

to best reflect the types of help and ways of helping that their local community members demanded. The non-hierarchical, non-bureaucratic structure inherent to mutual aid encourages individuals' autonomy in determining their needs (Spade, 2020a). Mutual aid does not employ *means testing* (i.e., the method for determining whether someone qualifies for assistance to obtain a service or good). Therefore, people that need a specific resource can ask for it in the group and accept it from someone else. Because there is very little overhead, people involved in mutual aid can move quickly to address needs, without bureaucratic blockers.

Through generalized exchange, group members not only exchanged resources, but due to the relational nature of generalized reciprocity, they also developed trusting relationships with other members of the group (Carroll & Bellotti, 2015). The development of trusting relationships between unfamiliar parties can encourage people to work together to address chronic issues at a higher level, i.e., the middle layer of the Mutual Aid Hierarchy of Needs. At this level, people have relational networks and can collectively develop support infrastructures to address chronic long-term needs. This is in direct contrast to the charity model, since charity-based relief removes relationship-building from the equation and reinforces the hierarchical divide between those that give aid and those that take it, disempowering aid receiver's self-determination.

Top-down approaches such as the charity model can be inherently oppressive because someone who is likely unaffected by the disaster is pushing the change. When affected communities do not have control over how resources and responsibilities are delegated, it can disrupt the community's ability to take care of its' own needs through channeling stores of social capital and other community assets. Such tensions are exasperated within government social welfare systems, as the relationship between the state, capitalism, social welfare and social work can manifest as exclusive, paternalistic and controlling (Izlar, 2019). Government-sponsored social support programs such as Supplemental Nutritional Assistance Program (SNAP)², involve complex bureaucracy which prohibits flexibility in aid delivery. Oftentimes, even those enrolled in programs still struggle to meet their basic needs. As such, utilizing government assistance, i.e., "welfare" holds significant social stigma in the United States (Kingsford, Gist-Mackey, & Pastorek, 2021), whereas engaging in

²<https://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program>

generalized exchanges with one's neighbors is considered as "neighborly". Because mutual aid is a community-based movement for and by the people that emphasizes solidarity, helping others' *without judgement* of another person's personal situation or extenuating circumstances can reduce stigma for the people who would be "receivers" of help in a traditional service exchange model. In this way, groups can deliver aid equitably in a way that can reduce the social stigma that is attached to those whose circumstances require them to rely on external support to achieve their basic needs. Community-based models such as mutual aid are durable approaches to disaster relief due to the inherent mechanisms that govern the groups, i.e., solidarity, self-determination, autonomy. Such systems are built successively from the ground up, i.e., the Mutual Aid Hierarchy of Community Needs and as such, are not subject to fragmentation like top-down models which were quickly overwhelmed and fragmented under the weight of surging needs. When community members work towards building better, more sustainable social systems based on bottom-up approaches, they can collectively be more protected from the negative impact of a disaster when the next one strikes.

4.5 Chapter Summary

This paper reports on an interview study with administrators of online mutual aid groups to understand how the groups facilitated disaster relief in local communities in the United States. We identified four aspects of online mutual aid that supported localized disaster relief during the COVID-19 pandemic. The online mutual aid groups facilitate generalized exchange to fulfill immediate needs, create initiatives aimed at bringing visibility to and addressing chronic issues, and build justice into local communities. These activities addressed wide-ranging aspects of disaster relief. As some of the groups developed their collective identity over time, the focus shifted from providing concrete aid to thinking about the local community as an abstract system, in which members have a responsibility towards others in the local community and that the way communities conduct themselves day-to-day can be a vehicle for systemic injustice. As agents striving for what they consider as positive social change in their local areas, the online groups become embedded in the the fabric of the community.

Our findings suggests that online mutual aid movements are capable of organizing more than concrete disaster relief; rather groups that experience successive achievement in the alleviation of concrete needs can reach a level of *community actualization*, whereby they consider the sources of inequality and develop ideas for how to build justice into the community. Incremental adjustments to social systems towards building justice can have wide impacts on the levels of need in a community.

This represents a shift away from disaster relief “first-aid”, of which there are numerous examples in the HCI and crisis informatics literature (e.g., (Palen & Hughes, 2018; Starbird & Stamberger, 2010; Vieweg et al., 2008), towards collective actualization of community ideals. Many of the interviewees in this study held the desire for the groups to continue even as the pandemic sunsets and eventually disappears from the public eye, as a space for community members to provide ongoing support for those who will inevitably be left behind in what economists are calling an *uneven recovery* (of Commerce, 2021). The current body of published work on community-based disaster relief during the COVID-19 pandemic is nascent, with exploration of the wider impacts of the initiatives and organizing brought about through online mutual aid is worth exploration. Tracking the path of online mutual aid serve to further augment our understanding of disaster relief and community recovery in the light of a long-haul disaster.

Community Support for Tangible Food Aid During COVID-19

This chapter stems from the interview study that was elaborated in Chapter 4, placing a special focus on how online mutual aid groups distributed food and developed programs to address food insecurity in their local community during COVID-19. This is based on the paper *Local Community Support for Tangible Food Aid During COVID-19* (Knearem, Jo, & Carroll, 2021a).

5.1 Introduction

Food insecurity can surge during a long-haul disaster such as COVID-19, because the disaster can cause breaks in the supply chain which furthers panic-buying by citizens in affected areas (Nicola et al., 2020). Previous studies in Human-Computer Interaction (HCI) explored how local people in affected areas leveraged social media or online communities to exchange tangible support (e.g., food, shelter, rescue activities) or share information (e.g., disaster status, evacuation) during disasters (Qu et al., 2011; Semaan & Mark, 2012; Shklovski et al., 2008; Starbird, Palen, Hughes, & Vieweg, 2010). Although impacts of community-based disaster relief via online platforms have been explored, they are not studied in the context of a global pandemic or a long-haul disaster lasting over a year.

Understanding impacts and strategies of community-based relief during the current pandemic can guide other local communities when another epidemic oc-

curs in the future. In this study, we are interested in understanding how online mutual aid groups addressed food insecurity, which became prevalent as more and more people were negatively impacted by the secondary affects of the pandemic (Niles et al., 2020). To this end, we conducted remote interviews with 17 administrators of online mutual aid groups. Specifically, we seek to answer to following research question: *How are local community members facilitating food aid through online mutual aid during a global pandemic?* Our findings suggest that the online groups contributed community-based food aid to satisfy aid requester’s immediate needs and laid the groundwork for long-term food security through the autonomous development and deployment of various food-related initiatives.

5.2 Methods

This paper is a sub-set of the larger interview study with online mutual aid group administrators that is outlined in Chapter 4, and utilizes the same research methodology and data analysis approach; please see Chapter 4 for a full description of the methodology used in this study. This study was approved by the university’s Institutional Review Board.

For the purpose of this chapter, the semi-structured interviews aimed to understand how online mutual aid groups facilitated food aid for disaster relief in their local communities during the first year of COVID-19 when social changes were frequent and uncertainty was high. To discover online mutual aid groups from which to recruit participants, we used the publicly available Mutual Aid Hub pandemic-related Mutual Aid Group data set¹ as well as snowball sampling. We conducted semi-structured interviews with 17 mutual aid group administrators, 13 were female and four were male, and they represented 13 COVID-19-related geographic-based (i.e., local area) online mutual aid groups across the United States. All participants were local residents of the area the group covered and were volunteering in an administrator role in their group. Each interview lasted between 45 minutes and 1.5 hours, depending on the participant’s schedule and depth of involvement in their group, and took place over the phone or on video conferencing software such as Zoom. Oral consent for participation in the interview and for audio recording

¹Available at <https://www.mutualaidhub.org/table-of-networks>

was obtained prior to the start of each interview. Participants from the same group were interviewed together. All participants met the following criteria: (1) were 18 years of age or older, (2) were in an administrator role in an online local mutual aid group, and (3) were willing to participate in an interview with a member of the research team. No compensation was provided for participation in this study. For the safety of all involved parties during COVID-19, no in-person research was conducted. All interviews were audio recorded, transcribed and coded iteratively using the constant comparative analysis method developed by Charmaz (2006). While nine high-level themes emerged from the data (see Chapter 4), this paper primarily draws on *Immediate Needs* and *Long-term Projects*, with a specific focus on food aid-related initiatives within these two themes. From these two high-level themes, we arrived at the two major themes regarding food aid in online mutual aid groups that are presented in the findings: community-based support for *immediate aid* and initiatives aimed at *long-term aid* for sustainable food security.

5.3 Findings

Our findings recount how our participant’s mutual aid groups provided a safe space for facilitating food aid through a variety of initiatives aimed at supporting both immediate and long-term needs. Almost all of our participants told us that food aid was a frequent request in their group. They made an effort to meet people where they were without judgement for anyone’s personal circumstances and to provide culturally-inclusive food support, e.g., making sure that people received familiar food items, which embodies the *self-determination* value of mutual aid (Spade, 2020a). For the first theme, *immediate food aid*, the group provided an online space to facilitate cash donations, grocery delivery, preparation of hot meals, and partnerships with local restaurants. Because COVID-19 is a long-haul disaster, immediate needs became difficult to fulfill over a long period, so our participants came up with ways to use the group to structure food aid for long-term sustainability. These initiatives comprise theme two *long-term food support*, and include community fridges / little free pantries as well as the development of community gardens and food cultivation education. In the following subsections, we provide details into the activities that comprise each theme.

5.3.1 Immediate Food Aid

Online community-based food aid filled an urgent gap between people who needed food immediately and people who could provide food or food-related support during COVID-19. The food aid organized through the online mutual aid groups differed from that of traditional charities (e.g., food banks), which require people to meet income thresholds in order to access aid. None of our participants means-tested any of the group members because as P9 pointed out, some newly vulnerable people were ashamed to visit a food bank during the pandemic. Our participants told us that many people in their online groups asked for cash to purchase food, particularly if they have food restrictions which make it difficult to accept community food donations. When asked about why cash was popular for food aid requests, P6 explained that if someone *“asked for food donation, they’re not gonna go give [them] those things [specific food requests]. They’re going to give them whatever they can because the places that they’re getting food from are just community members donating food. They’d be better off to say ‘I really need 25 dollars because I need creamer and some coffee’. So that way they can get the things that they’re able to use instead of just something”*. Most participants shared that their group had a crowd-funded community donation fund, which they used to provide cash to people who requested financial help getting food. For example, P5 said *“I’ve given out about \$20,000 worth of financial assistance directly to people. And that’s either by paying for groceries or supplies that they’re requesting [on the news feed], or just sending them money [via a payment app]”*.

Another way food aid was distributed through the group was through grocery delivery. Especially early on in the pandemic, some people were unable to shop for themselves (i.e., immuno-compromised or isolating due to having COVID-19), so they enlisted help from a neighbor by making a post to the group. P8 told us that her group’s grocery delivery operation was *“started [...] because we quickly realized that was a huge need that was not getting met, particularly folks being able to leave their home to pick up food”*. P8 and P13 shared Google Forms with group members to arrange food purchases and deliveries for people who didn’t have financial resources to buy groceries or were unable to get to a store. P8 also had requesters fill out contact information and a list of food allergies and preferences.

Some participants (i.e., P10, P11, P12 from the same group, as well as P1,

P2, and P4 from different groups) mentioned that their groups facilitated food aid through community-organized meal preparation and distribution, all organized through posts on the group. In these cases, the group members responded to the need that they observed on the group’s timeline, and donated ingredients, cooked and/or delivered food to the food requesters. For example, P2 told us that each week one member in her group would post about how she “*cooks up a couple dozen home cooked meals and goes out up and down Main Street, and hits all of the congregation spots to make sure [houseless] people get at least one hot meal this week*”. P10, P11, and P12 of the same group prepared food for community meals once a week. They used their group’s news feed to share the time and location of the meal so that group members can show up for a hot, home-cooked meal. P1 told us that their group facilitated partnerships with local restaurants to provide urgent hot meals for COVID positive people who were recovering at home. Group members could access these meals by posting to the group’s page or contacting an admin through a private message. These initiatives supported immediate hunger relief by providing hot, nutritious food to community members when they needed it.

5.3.2 Long-term Food Support

The second way that online mutual aid groups facilitated food aid was through long-term relief efforts, which impacted both group members and general members of the local community who were not members of the online group. Across our participants, we learned that this type of aid supported chronic need in their local community through the organization of *little free pantries*² and *community fridges*³ (here-forth referred to as food programs), and empowered residents to cultivate their own fresh food through *container gardens* and *community gardens*.

Participants from seven different groups mentioned that their online group acted as an organizing space for nascent food programs and provided information about pantry or fridge locations in the local area. The online space was vital to facilitating long-term aid because of the interconnected network of helpers that admins could harness to develop food programs (P8), and visibility into trends

²<https://www.littlefreepantry.org/>

³https://en.wikipedia.org/wiki/Community_fridge

concerning food needs (P2). Due to the overwhelming requests for immediate food aid in her group, P1 initially conceived the idea of a grass-roots local food pantry to provide food for anyone in her community. She said that an autonomous team formed over the group to lead the initiative, and expanded the concept to be culturally inclusive because they *“found that the local food banks were not providing things like Maseca, jasmine rice, and things that [their] community needed”*. P16 often posted pictures of the little free pantries that her group set up around town that were in need of donations to urge members to *“fill them as often as [they] can [...] because people use those things”*. Members of P7’s group started a food program that grew to operate over 30 little free pantries in his area. He said *“There’s the [color] food pantry cabinet [team] that focuses on coordinating those efforts. The leadership team oversees all the different projects and gets reports and makes some decisions”*. They made an auxiliary Facebook Group and a website where local citizens can find a location nearby to donate food or to pick up food if they need it. In P11’s group, food aid requesters could fill out an online form to opt-in to receive a bag of groceries that were purchased with community donations once per week. She mentioned that the program was successful in meeting the goal of weekly grocery bags, and although it would sometimes take time to collect enough donations or price out new items, the group was particularly successful at *“supporting special requests for specific grocery items that [recipients] would like to come in the boxes”*. While the organization of the food programs and information for how to contribute support or request food aid was facilitated through the online group, the food programs provided an important tangible link to online mutual aid efforts in the local community. Many of the programs were set up in public locations throughout town, making them open to anyone who passed by, not just members of the online group.

Admins in four different groups mentioned organizing local people to cultivate community gardens as a response to food insecurity and the growing number of people who needed food during the pandemic. For P7, community gardens were a form of food activism, whereby growing one’s own food is an act of empowerment as much as it is a source of nourishment. Other admins, such as P4 took a more pragmatic approach: *“Last year we did this, and we’ll do again this year, a container gardening project. It was specifically for Black, Indigenous, people of*

color. Where we built container gardens and passed them out for free [...] we just delivered for people that had transportation issues”.

Education around household food production was also a key part of long-term food aid initiatives. For P16, community gardening was not just about feeding one’s neighbors, but also about growing people’s interest in food cultivation. She said, *“we have a community garden plot [...] and that’s something that we’re going to invest a lot of time and effort into. It’s not just getting actual food grown and back out into the community, but connecting people with the process of growing their food, and knowing their food, and getting back into the land”.* Most admins told us that they intended to continue advancing their long-term efforts even after the pandemic wanes.

5.4 Discussion and Concluding Remarks

Society faced an acute increase in food insecurity during the pandemic (Niles et al., 2020). Aside from food insecurity, some people felt unsafe going grocery shopping due to the risks of contracting the virus. However, restrictions on face-to-face interactions to prevent virus spread made it harder to organize civic disaster relief efforts. Thus, social media was an essential medium for reaching out to people in need and coordinating volunteers (Jo et al., 2021). For instance, mutual aid groups shared dates for meal distribution via Facebook. In line with prior research on how social media is a key facilitator of community-based disaster relief (e.g., sharing location-specific information (Palen et al., 2007), distributing goods and emotional support (Dailey et al., 2016)), during the pandemic we found that online mutual aid was a vital channel for people who can provide various support (e.g., grocery delivery or a hot meal, cooking hot meals) to connect with those who needed support.

Organized by people situated in the same geographic community, these food relief activities were not bound to an online space. In previous disasters, sharing resource information and appreciation through social media strengthened neighborhood social relationships (Li et al., 2019). Building on this, online mutual aid groups inter-weaved online and offline engagement which brought relief to the wider community who may not be aware of the online groups; after organizing

online, people physically gathered to realize tangible food aid by distributing hot meals or groceries and filling community pantries. Because of their extension to the offline space, other local community members who might not have Internet or Facebook access could volunteer or benefit from the group's efforts. Once non-members find out about pantries from their neighbors, they can also stock or grab food from the pantries. Extension of disaster relief to offline space also extends relationships formed online to offline. Possibly due to trust that was developed between people in the group (Macias et al., 2009), members willingly exchanged contact information to work on initiatives and facilitate aid exchange. Localized offline disaster relief builds weak ties between community members and strengthens community bonding, which is an attribute of resilient communities (Ahmed, Seedat, Van Niekerk, & Bulbulia, 2004). These newfound weak ties contribute to rapid, efficient future disaster relief.

Not only did mutual aid groups help people struggling from food insecurity to stay afloat, but they also nourished them with proper humanistic care. First, beyond securing food, mutual aid groups ensured *food dignity* for those in need, emphasizing that people should have food choice. They made sure people could specify preferred foods, get at least one hot meal every week instead of instant or canned food, and enjoy culturally-inclusive food. Second, although COVID-19 caused overwhelming food aid requests due to unexpected life situations (e.g., risks associated with grocery shopping, food insecurity from unemployment), neighbors made sure that fewer people experience hunger. In the group, other members saw that food needs were being met, which suggests neighborly care.

Instead of relying on a centralized food distribution system to come in and distribute food, mutual aid groups developed long-term and self-sufficient community-based means of food security, i.e., community gardens and food cultivation educational programs. Amidst disasters which can cause economic disruption and food shortages, both immediate and sustained access to food is vital. Communities can address food insecurity independently with their own capacities, and such self-sufficiency will eventually make them more prepared and resilient in future crises (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). Furthermore, the long-term food aid projects are not confined to disaster relief as admins planned to continue the initiatives after the pandemic stabilizes. Although COVID-19 sur-

faced the need for hunger relief, people who suffer from food insecurity have always existed. Continuing long-term initiatives can build groundwork for food security and attenuate the root cause of hunger. For example, with community gardens, people have better access to fresh produce.

5.5 Limitations & Future Work

We interviewed 17 mutual aid administrators to understand how online mutual aid was used to facilitate disaster relief during COVID-19. This study was conducted in the United States during early 2021, when the United States was still in the middle of the largest to-date wave of COVID-19 infections. Future work could include follow-up interviews with our mutual aid administrator participants to get an understanding of how the types of food aid requests changed as the pandemic progressed, as well as to better understand the successes and challenges around implementing the long-term initiatives that were discussed in the original interviews. Future work could also achieve a larger sample of mutual aid group administrators or users through a survey designed to understand how people are using online mutual aid at the 1.5 year mark and beyond. Finally, being able to generalize these findings to other cultural contexts would necessitate additional studies in non-U.S. contexts.

5.6 Chapter Summary

This chapter introduced two main types of food aid support in local community online mutual aid groups during the first year of COVID-19, and discusses how these types of support were implemented to help food insecure individuals get needed food immediately and to provide food to address future need. Our findings provide a foundational *blueprint* for community-based food aid efforts. These efforts were created by autonomous groups of people within online mutual aid groups as quick, cost-effective ways to help their neighbors. Other communities can borrow the initiatives discussed in this paper to address specific needs in their own areas, considering their demographics. Additionally, making food aid efforts visible both online and offline can show the wider community that civic initiatives are happen-

ing. Such visibility can open up opportunities for citizens who were not initially involved in the initiatives to contribute to food aid efforts, e.g., by bringing food to community fridges, as a form of civic participation, which can thereby strengthen community resilience, i.e., the actualization of collective efforts for disaster relief. Providing timely and accessible food aid is vital for local communities to combat the secondary effects of the pandemic, and to work towards reducing further suffering and inequality with regard to food security.

Online Care-Mongering to Make Visible Community Beliefs and Capacities

This chapter introduces a qualitative thematic analysis of the posts and comments on a publicly visible Facebook care-mongering group to learn about how social media was appropriated by local citizens to facilitate care-mongering during COVID-19, which is based on the paper to appear in January, 2022, *Making Community Beliefs and Capacities Visible Through Care-mongering During COVID-19* (Knearem et al., 2022).

6.1 Introduction

The COVID-19 pandemic brought forth unanticipated changes in human interaction, as communities rushed to slow the spread of the coronavirus. In response, local geographic community members created grassroots care-mongering groups on social media to facilitate acts of kindness, otherwise known as *care-mongering*. Care-mongering describes the practice of acts of kindness that promote community camaraderie, i.e., Seow et al. (2021) in geographic communities, such as cities, towns or neighborhoods. As elaborated in Chapter 2, care-mongering is a sub-set of mutual aid, and care-mongering groups, which first emerged during COVID-19,

were created by citizens for the purpose of engaging in care-related activities relating to the disruptions caused by COVID-19, with less of an emphasis, at least when this study was conducted, on long-term social change initiatives. Such appropriations of social media for care-mongering activities contribute to a revival of local community support, as ordinary citizens create informal networks of neighborly help through social media. Beginning in mid-March 2020, care-mongering groups began to appear on social media in the United States. Care-mongering groups are initiated as such by local citizens as a space for people to offer help to others within their communities. In these groups, members typically exchange various kinds of information, organize initiatives to address local needs (e.g., housing, food), ask for personal help, and offer to provide help to others (Knearem, Jo, Tsai, & Carroll, 2021). Using social media for care-mongering imparts a paradigm shift away from scare-mongering (Depoux et al., 2020), i.e., spreading stories to inspire fear and worry, towards spreading positivity and goodwill (Seow et al., 2021), and paves the way for communities to develop new ways of interacting and taking care of one another.

Contributions to activities such as disaster relief efforts builds one's efficacy (Bandura et al., 1999), or the belief that one can be successful in spite of challenges. Applying this concept to communities, Carroll and Reese (2003) developed *community collective efficacy (CCE)*, as a set of beliefs that community members hold about their local community's capacity to successfully traverse challenging situations. Strong CCE is essential for developing and maintaining community resilience (Paton & Johnston, 2001). Community resilience refers to a community's collective capacity to organize and carry out efforts that benefit the collective. Because most people who are alive today have no experience living amidst a long-lasting global pandemic like COVID-19, many citizens were not sure if their local communities would be able to overcome multi-layered risks and crises effectively. Failed efforts by the collective to protect their community could negatively affect citizen's beliefs in their own community's capacity (i.e., decreased CCE), which can eventually reduce community resilience, thereby negatively impacting community-based relief efforts for COVID-19.

Prior work in crisis informatics investigated the growth of care-mongering as a social movement during COVID-19 (Seow et al., 2021; Vervaecke & Meisner, 2021),

but little attention has been paid to the specific types of care-mongering that occur over care-mongering groups on social media. We observed a local care-mongering group based in Austin, Texas, USA on Facebook and did a thematic analysis of the *care-mongering* posts and comments to answer the following research questions: 1) In what ways do local communities use social media care-mongering groups to practice care-mongering during the COVID-19 pandemic, 2) How can this practice relate to CCE and community resilience, and 3) What are the implications for designing systems to further support the locally-based care-mongering that we observed? Our findings contribute to the crisis informatics literature by bringing visibility to the importance of care-mongering on “community beliefs and capacities” and by showing how socio-technical systems can facilitate care-mongering during crises. Adaptive responses to pandemic restrictions support local community members to play an active role in caring for each other over social media care-mongering groups by engaging in three facets of care-mongering: showing appreciation for helpers, coming up with ways of supporting one another’s needs, and continuing social interactions online. Based on our findings, we propose ideas for further augmenting the current practices of care-mongering.

6.2 Methods

This study aims to understand the different types of care-mongering in care-mongering groups during COVID-19. Our methodology consists of observations of content from a care-mongering group on Facebook. We did a qualitative thematic analysis on the posts and comments using the constant comparative analysis approach for data analysis (Charmaz, 2006). Because the data were publicly available, this study did not require approval by our university Institutional Review Board. However, due to potential ethical issues, we anonymized the name of the Facebook group that we analyzed as well as other identifying information (e.g., addresses, business names and user names) when quoting posts and comments in this paper.

6.2.1 Data Source

Previous research identified Facebook as the most widely used publicly available platform for local community-based pandemic-relief during COVID-19 (Jones et al., 2020). Within the broad category of pandemic-relief support groups (e.g., mental health support groups, job search groups), local care-mongering groups were created en-mass on Facebook in the early days of the pandemic beginning in March, 2020. We used the following criteria to select a care-mongering Facebook group: (1) the group is a local care-mongering group, (2) covers a local area with sustained COVID-19 cases during the duration of the pandemic up until the end of the data collection period, (3) is publicly discoverable on Facebook, (4) is open to anyone to join, view, or post, and (4) has frequent group activity.

The group *COVID-19 Community Relief for TX (pseudonym)* satisfied all selection criteria. Previous research noted that member participation in grass-root disaster communication platforms declined as the disaster stabilized (Shklovski et al., 2008). Therefore we chose to investigate a group based in Austin, Texas because the area had a high level of COVID-19 cases compared with other areas in the United States during the entirety of the data collection window. The group is publicly discoverable and open to anyone to join, view or post. Group activity (e.g., posts and comments) has sustained since its' inception, which we used as a proxy indicator that the group serves a purpose in the local community. The group was created on March 14, 2020, and had a membership of over 5,000 as of January 19th, 2021. We explored all posts uploaded in the group between March 14th, 2020 and January 19th, 2021, when data collection was halted. We collected 2,254 posts in total.

6.2.2 Data Analysis

Members of *COVID-19 Community Relief for TX* uploaded a wide variety of posts pertaining to their local community, including aid requests, aid offers, local news articles, virtual events, volunteer opportunities and posts showing appreciation for others. To answer our research questions, we were interested in exploring “care-mongering” posts to discover underlying themes in type of care-mongering being expressed by the poster. We used the constant comparative analysis method

(Charmaz, 2006) to iteratively code each post through an inductive approach. One member of the research team filtered out irrelevant posts by reading each of the 2,254 posts and categorizing each post based on whether the poster was engaging in a form of care-mongering or something else. To meet the criteria for “care-mongering”, the post content needed to be generalized to the wider community (i.e., generalized exchange), and contain language that expressed care such as but not limited to “*We can get through this...*” or “*I appreciate...*”. Posts that were transactional or dyadic in nature (i.e., aid requests or offers) were not considered care-mongering because they represented reciprocal exchange. In addition, we filtered out general advice about the coronavirus because such posts were objective, and not intended as personalized messages. In total, we identified 107 posts of the original 2,254 as posts related to care-mongering. The 107 posts contained 761 total comments, which were also reviewed.

In the next step, we coded the 107 posts based on the type of care-mongering being expressed in the post. One member of the research team assigned each post one or more codes which were developed inductively based on our review of each of the posts and associated comments’ content. After the initial coding process, the research team held a series of meetings and collectively read and discussed the posts to validate the original identified codes and aggregate them into higher-level codes. The final coding scheme contained seven codes: (1) appreciation (e.g., thanking); (2) inspiration (e.g., post encourages social-good action); (3) socialization (e.g., virtual meet-ups); (4) CCE (e.g., expressions of the poster’s belief that their community can or did come together towards a common goal); (5) celebration (e.g., birthday parties); (6) encouragement (e.g., uplifting message) and (7) visibility (e.g., draw attention to someone’s contribution). After the initial coding process, we developed the seven final codes into three themes. We combined (1) appreciation and (7) visibility into *Showing Appreciation for Helpers*, (2) inspiration (5) celebration and (6) encouragement into *Supporting One Another’s Needs*, while (3) socialization became *Continuing Social Interactions Online*. We concluded that (4) CCE, was a super category that the three higher-level themes fell within, in that the other six categories are types of activities that can contribute to CCE. To validate our finalized themes, the research team collectively read all the posts and their associated comments for each theme and discussed

any remaining discrepancies until an agreement was reached. While this process surfaced additional themes, we chose to present only those which related directly to our research questions about the practices of care-mongering.

6.3 Findings

We observed that social media plays a key role in facilitating three facets of care-mongering during a long-haul disaster. Through the care-mongering group, members made visible the work of others as a show of *appreciation for helpers*, came up with means of *supporting one another's needs*, and figured out *safe ways to socially interact*. In the following subsections, we provide details into the activities that comprise each facet.

6.3.1 Showing Appreciation for Helpers

The group facilitated acts of appreciation for the helpers in the community, and revealed member's good deeds towards others. Acts of appreciation are a light-weight form of community engagement, where members enact collective identity (Carroll, 2014), which is also a necessary building block for CCE (Carroll & Reese, 2003). Posters displayed various forms of appreciation for the helpers in their community through the care-mongering group. Previous research suggests that increasing visibility of community activities can allow members to identify previously hidden community assets (Carroll & Rosson, 2013). We noticed that in some cases, posters raised the visibility of people who were supporting the community "backstage". The *Mask Creators* (pseudonym) were a local group who made fabric masks at their houses and donated them to frontline and healthcare workers early on in the pandemic, when masks were hard to come by. In this example, a poster made the Mask Warriors' efforts visible by sharing how hard they worked to make the masks, and asking others to join in and show appreciation. Many people in the group commented with words of appreciation for the Mask Creators by naming the various frontline worker groups that received their donated masks.

Post: MASK CREATORS WE APPRECIATE YOU! SHOW THEM SOME LOVE. THEY GET VERY LITTLE SLEEP, WORK 12-18

HR DAYS and RECEIVE NO PAY! OVER 500 MADE THIS WEEK.

Comment 1: *thank you for getting Austin PD covered! I appreciate you*

Comment 2: *I know there are sooo many Austin Mask Creators who are silently donating to their communities. Please know that I truly appreciate you too.*

(All uploaded on April 19th, 2020)

By using a post to ask members to show appreciation, commenters on that post could elevate important volunteer work being done to keep the community safe from the coronavirus. Similarly, another poster brought visibility to local independent mask makers by asking them to show off their handiwork in the comments. The post received over 130 comments from people who shared photos of their handmade masks, told the group who the mask was for, and asked each other questions about the various mask-making materials they used. This post gave visibility into the individual efforts of community members and allowed group members to acknowledge their efforts with comments such as *Love it!* and *My fave! Great work!*

Post: *#MaskCreatorsAustin Let's see some masks ladies. Show off your work here! Share your pics in comments. Can't wait to see the workarounds!*

Comment 1: *are you making yours w/filter pockets? I'm attempting a new pattern tomorrow for a nurse I used to work with.*

Comment 2: *Using ribbon and hair elastics since elastic is hard to come by! My neighbor 3D printed me some of the now-popular back of head loop hooks!*

(All uploaded on April 12th, 2020)

The above post recognizes individual's contributions to keeping people safe in the community. The mask photos that were uploaded as comments were also a source of inspiration for other mask-makers, who got ideas for making their own masks from those examples.

Another act of appreciation occurred when a poster created a thread by asking the group to give a “shout out” to anyone in the group who helped them out (Uploaded on April 12th, 2020). This post generated over 50 comments from group members who added comments to acknowledge someone or to second an existing acknowledgement with expressions of gratitude such as “*We appreciate it so much, ya’ll!*” and “*We are the undercover heroes*”. While many acknowledgements in the comments went to healthcare and other frontline workers, we observed examples which included people who made masks for farmers, those who bought and/or delivered groceries and other necessities, and people who provided monetary donations or gift cards for families in need (all originally uploaded on April 12th, 2020).

Next, care-mongering was facilitated through collective appreciation posts for events aimed at acknowledging healthcare and other frontline workers. A poster recruited volunteers to deliver flowers to local hospitals to brighten the days of staff and patients (Uploaded on July 5th, 2020). Another poster aimed to raise awareness for his mission and to recruit group members to participate in thanking healthcare workers by sending them a personalized “thank you” letter (Uploaded on April 29th, 2020). Individuals could either volunteer to write letters or nominate a healthcare worker to receive a letter. The poster leveraged the group’s membership to complete the letter-writing task and broadened the pool of people to thank by leveraging the member’s personal networks to source healthcare workers.

In the same vein, posts for offline collective appreciation events also contributed to building CCE through visible, real-life examples of appreciation. For example, a poster wrote, “*Please light a candle outside your home tonight @ 7pm and let it shine for the safety of our 1st responders, nurses, and healthcare professionals #lettherebelight #shinelightforheroes*” (Uploaded on April 1st, 2020). This post alerted the group to the activity so that they could participate and spread the word, as well as understand what the candles represented to the community.

Showing appreciation for initiative outcomes was another way that the group was used to facilitate care-mongering. Through use of photos and videos, posters shared the results of their community care initiatives with the rest of the group. A poster took a photo of a table full of donated items and captioned it with, “*Some*

good news, our ATX community is amazing. This is donations from the public for the hospitals! Thank you. Please keep them coming because there are several hospitals, & we are only getting busier” (Uploaded on April 29th, 2020). Other posters shared updates on people that were being helped by the group members. These types of posts brought awareness to members that the initiatives that were organized through the group made measurable, real-world impact on other local people in the community.

Post: *Thank you so much to all of you that have donated to Roberta (pseudonym) and her family! I'm happy to report that she saw the obgyn last week. Her baby girl is healthy and doing just fine! We've also been able to connect her with organizations that are willing to help her during this difficult time. A few weeks ago she had no resources and felt totally alone. Now she's smiling and has hope for the future! They are forever grateful for your kindness and compassion! Thank you for being amazing human beings* (Uploaded on April 27th, 2020)

Comment 1: *Thank you for this update!* (Uploaded on April 27th, 2020)

Comment 2: *I still have the bag of newborn clothes and blankets if she's still in need* (Uploaded on April 28th, 2020)

As shown in the comments for the post above, the positive outcome also motivated members to offer additional support, further reinforcing the belief that the community can provide for members in need. This was similarly reflected in another post with a photo of PPE donations and a caption which read “*Shout out to Amy (pseudonym) for helping out our hospitals!!!*” (Uploaded on April 2nd, 2020). In this post, commenters offered to donate supplies from their own stock to help hospital workers, such as one who offered “*91% alcohol, aloe vera gel if you want to make handsantzier*” (Uploaded on April 2nd, 2020). Posts that showed appreciation for ongoing community activities such as the PPE donation drive inspired more members to become involved in care-mongering, and built the belief that community initiatives can provide necessary support for local members.

Finally, the group was utilized as a safe space for general appreciation, and for acknowledging oneself as a part of a community which focused on support

for others during a difficult time. In one case, a poster realized that she could do something good for her community through the group (Uploaded on April 5th, 2020). She expressed gratitude for being amongst helpers and encouraged members to keep helping others. Another poster recognized that the group was a positive alternative to the scare-mongering that can occur on social media, and was inspired by how group members used social media to come together and support each other (Uploaded on April 1st, 2020). Commenters echoed her thoughts and added that the post served as a reminder that they are doing good work, and was a helpful motivator to continue supporting others, even if it is sometimes difficult to see their impact (All comments uploaded on April 1st, 2020). This thread emphasized self-efficacy, in that the posters were developing their own belief that they were capable helpers, and the thread displayed these member's collective beliefs that their community was capable of care-mongering to others who viewed the post the group.

6.3.2 Supporting One Another's Needs

Members used the care-mongering group to facilitate direct actions to benefit local people or solve needs in their local community. We observed that members were actively doing things to support other individuals en-mass in the community by posting their initiatives on the group and recruiting people to take part in them.

Posts notifying the group about collective birthday celebrations were frequent. Notably, because children were unable to have usual birthday celebrations due to social distancing and other regulations limiting in-person gatherings, group members organized to provide a memorable experience for local children. One organizer of a drive-by birthday event posted details about it to the group in order to solicit donations for birthday gifts or invite members to participate in a socially distanced celebration. In another example, a community member posted that he was organizing a car parade to drive by the child's house with birthday wishes, as well as to bring donations for the family to host a private celebration (Uploaded on April 17th, 2020). The poster provided his email address so that people who wanted to join in the parade could get location information. In another example, the poster was coordinating a gift drop-off for a birthday party for a local child. In

the post below, she gave information about what had already been secured for this party. Comments indicated that this type of event was recurring on the group.

Post: *Last call if you would like to help out with the bday of the family going through childhood cancer! We got a food truck to sponsor the food, a cake company to customize a Minecraft cake, the Nintendo switch, bed sheets, blankets, shoes, and Sodas. We also booked a life sized pikachu to surprise the family! If you would like to help offset any costs, please let us know! [Includes photos of the children]* (Uploaded on April 30th, 2020)

Comment 1: *That is amazing! If anything is needed let me know. I'd love to contribute something.* (Uploaded on April 30th, 2020)

Comment 2: *Wish we could drive out for this one too!! He looks so sweet! Let me know if there is anything I can do from Htown.* (Uploaded on April 30th, 2020)

Comment 3: *How did the party turn out?* (Uploaded on May 3rd, 2020)

Posts disseminating information about celebratory events grabbed the attention of the group. Commenters applauded the community's efforts or volunteered to contribute to the event. These posts furthered the impression that the local community cares about its' children by coming together to create socially-distanced special events for kids and families.

Another way the group facilitated support was through providing food for people who were experiencing houselessness and other families in need. Some members of the group used posts to organize a community soup operation, where they posted about making large portions of hot soup to give away. A poster requested help from the group for buying ingredients, cooking, and delivering the soup around town (Uploaded on November 5th, 2020). In another post, she updated the group about how their donations helped their community.

Post: *Thanks y'all! See below how your donations helped feed the homeless so far! I'll be making more soup this week! Update: I'm on pot 3 & 4 already!! Thanks to many of YOU with your generous donations,*

we just got back from delivering 18 cups of hot chicken tortilla soup, waters, blankets, mittens, fleece scarves, AND hand warmers to the homeless. Everyone was so appreciative and sweet. One gentlemen walked with us a bit to help us hand out supplies and soup to his fellow campers[...]. Definitely need more of the cold weather supplies to be able to keep helping as we can. And it doesn't have to be new things from amazon! We LOVE to take old blankets, comforters, gloves, scarves, beanies off of your hands! (Uploaded on October 26th, 2020)

Commenter: *Hey could you do the same with oatmeal? serve in cups. I have several bags of oatmeal, cartons of the shelved milk.. just need the sugar/bwn sugar... (Uploaded on October 27th, 2020)*

Poster: *that's a great idea but right now I have to get through all of the soup donations. Will keep that in mind tho!! (Uploaded on October 27th, 2020)*

Commenter: *let me know, ill help with prep. Those cups were a great idea, better than what i had serving up... pm you now (Uploaded on October 27th, 2020)*

The post with the update received comments from a person who saw the initiative on the group and wanted to contribute to the mission with his own ideas for making healthy food. He connected with the organizer through the thread.

The group provided a forum for local people to present ideas for how to collectively solve local needs, such as reducing the spread of the coronavirus. Posters raised awareness about risky activities and how to modify one's behavior to keep the community safer. One poster suggested that members could reduce their risk of spreading COVID-19 during Thanksgiving by not traveling. Instead, the poster offered support to others who may be lonely if they followed this advice by offering to video chat with people who were not meeting family.

Post: *As everybody knows, Thanksgiving is just 2 days away. **Per the recommendations of the CDC and every doctor I know, I urge people to stay within their existing and immediate circle of exposure of friends/family, rather than travel and***

*link up with loved ones beyond that radius. My husband and I will be hanging just the 2 of us of Thursday, and **I'm happy to zoom in with any one of y'all should you want some company.** Furthermore, let's make a fun feed for inspiration. What is a favorite tradition or recipe that you typically enjoy with YOUR family on Thanksgiving. How will you be celebrating differently this year? Any creative ways your family has adapted to the times? Share with us! Perhaps we can try to include in ours!* (Uploaded on November 24th, 2020)

***Comment 1:** Wanted share this with y'all in case someone finds this helpful. Zoom is waiving the 40 minute time limit on Thanksgiving.* (Uploaded on November 24th, 2020)

***Comment 2:** We actually had our first family zoom the other day with 5 or so other family households. It was so nice and lasted almost an hour and a half. I highly recommend it.* (Uploaded on November 25th, 2020)

This post initiated a conversation about video conferencing as a safe alternative to in-person gatherings. Commenters shared their experiences of video chatting with their families, as well as how they adapted their holiday celebration. Comments about virtual celebrations showed other members who read the thread that many people in their local area had found ways of remotely celebrating holidays with their loved ones, and that these options were suitable replacements for usual holiday celebrations.

A poster who worked at a local retail store which was considered an essential business gave advice about how to shop efficiently and safely both to limit exposure to the virus, as well as protect essential workers at the store (Uploaded on March 30th, 2020). The poster asked members to share his message in order to inform others outside of the group about safe practices when running errands.

Group members utilized the care-mongering group to provide care to individuals in the community through organizing, publicizing and reporting back on socially-distanced children's birthday celebrations. They initiated a community soup operation which provided food to individuals and families in need. The group

supported one another with advice and suggested alternatives to pre-pandemic norms aimed at helping their community control the spread of COVID-19. These activities showed care and good-will towards others' well-being, and also reinforced the idea that the community is resilient and able to overcome challenging situations.

6.3.3 Continuing Social Interactions Online

Prior to the pandemic, local community members could build social bonds with previously unrelated neighbors and reinforce social relationships with acquaintances by attending local events or gatherings. Stronger social ties cultivate a sense of belonging among individuals (Jeon, Shin, & Lee, 2014) which extends to community cohesion and reinforces collective identity (Gursoy, Kim, & Uysal, 2004; Yolal, Çetinel, & Uysal, 2009). Collective identity, or the shared values, traditions and experiences of a community (Carroll, 2014) contributes a sense of belonging, which is known to build CCE in non-disaster contexts (Carroll & Reese, 2003). During the pandemic, local communities have reconsidered how community members interact with each other in order to remove some of the health risks regarding airborne virus transmission when socializing during a pandemic. Attending to the health of others by moving things online is a form of care.

Within the care-mongering group, members enacted community through inviting others to their virtual events, and through posting about interesting local virtual events that they attended. For example, a poster said she wanted to socialize with others in the local community, and offered to organize a virtual meet-up with members of the group who were also quarantining (Uploaded on September 8th, 2020).

Similarly, because of the restrictions and hesitancy around meeting in-person, members utilized the care-mongering group to build their networks virtually by bringing attention to virtual meet-up events hosted by local special-interest groups. Such posts provided opportunities for members to get involved with other similarly-minded local people while simultaneously practicing social-distancing.

***Post:** Ladies, if you are looking for ways to connect with other women during social distancing, this is the perfect hype squad! We are hosting*

a free virtual meeting on the 7th! [link] You can join the group Austin Women's Empowerment Meetup to interact with like-minded supportive women. We are all in this. (Uploaded on April 27th, 2020)

The above post let group members know that a local social activity had moved online, while also reinforcing the idea that the community can get through the pandemic by connecting with one another.

In another case, a poster acknowledged that some members may not understand how to use video conferencing tools to create virtual events or communicate with their family or friends. Rather than risk one's health, the poster promoted safe socializing by offering to teach other group members how to use video conferencing tools.

***Post:** Save Christmas - As more people are forced to have a cyber Christmas this year because of the Pandemic, I want to help bring people together online. Feel free to message me for free info about things like online video conferencing or Live webcast. (Uploaded on December 21st, 2020)*

Investing in others' abilities to keep the community safe is a form of care. This offer gave non-technically savvy members a chance to learn new technologies and participate in network-building through virtual versions of local events. Hosting local hangouts and moving formerly in-person events into the virtual environment supported safe socializing, and gave members a chance to meet new people and build local support networks.

The three facets of care-mongering described in this section were instrumental in providing an avenue to receive support and to put one's skills to work in the service of others during the COVID-19 pandemic. Members used the care-mongering group as a place to demonstrate appreciation for other's good deeds, create and engage others in civic initiatives which addressed pressing local needs, and help people adapt to virtual modes of socializing.

6.4 Discussion

Care-mongering groups on social media provided an important space for community care during long-haul COVID-19 disaster which had overturned everyday life, specifically through the three facets of care-mongering that we identified: 1) showing appreciation for helpers; 2) supporting one another's needs; 3) continuing social interactions online. In the following subsections, we will explore how socio-technical systems (i.e., social media) facilitate the facets of care-mongering, and consider how they might contribute to the development of community beliefs and capacities, i.e., CCE and community resilience. Based on the findings, we present design recommendations for sociotechnical systems to further augment the practices of care-mongering that we identified on social media during long-haul disasters.

6.4.1 Visibility of Acts of Gratitude

In Section 4.1 *showing appreciation for helpers*, group members brought awareness to other's good deeds and elevated pro-social initiatives. We observed people appreciating both frontline healthcare workers as well as a wider range of community members including mask makers, food donors and people who provided goods to families in need (Section 4.1). The roles being appreciated in the group were not commonly considered during the pandemic, as most acts of appreciation that made the national news were directed to frontline workers (Webber, Durbin, & D'Innocenzio, 2020). Because we observed that group members utilized posts to start threads specifically aimed at acknowledging others' efforts, this suggests that the group sees public thanking as an expression of care. The expressions of gratitude within the public forum of the care-mongering group are good for everyone in that their content can show that people in the community see and value the good work that is being done. For instance, the collective gratitude shown towards mask makers shed visibility on a previously unrecognized community asset; this particular asset is vital to effective disaster relief during a long-haul disaster. This example echoes how CCE is developed and maintained in everyday contexts (Carroll, 2014), and suggests that similar mechanisms are at work in disaster contexts. Such beliefs when acted upon, for example, supporting the mask makers by offer-

ing advice or supplies as commenters did in 4.1, contribute to actualized capacities associated with community resilience (i.e., the community can provision the masks to people in need, thus alleviating the dearth of PPE) and stronger collective performance (Bandura et al., 1999; Paton & Johnston, 2001). The posts helped group members become aware of individual mask makers contributions, which can increase member's beliefs that their community can cope with a difficult situation together where there was a dearth of PPE early on in the pandemic. For those who get appreciated, collective gratitude can help them feel that their efforts are of value to others (Di Fabio, Palazzeschi, & Bucci, 2017), which gives them a sense of social worth because they are needed in their community (Rosenberg & McCullough, 1981). Increased social worth leads to more active contributions (Grant & Gino, 2010), which supports the notion that during a long-haul disaster for which the end date was unknown, expressions of gratitude can be a source of CCE in care-mongering groups and can motivate people to continue their contributions, thereby further contributing to actualized capacities for disaster relief.

To augment public acts of appreciation and make them more visible and thus easier to locate in social media groups, groups could implement a digital “thank you” board, which would put all of the community members who benefited the community under the public spotlight. In contrast to a simple Facebook timeline where appreciation posts can be buried and are mixed-in with other content, a digital board could keep the posts separate and easy to notice. Community members could express their gratitude by leaving thank-you notes, or look back to see whose labor they may have taken for granted by reading other's posts. They could also tag their friends or family members whose jobs or roles are being appreciated to extend the appreciation to them. Administrators could observe which community workers are less frequently mentioned on the board and upload a “thank-you” post to seed appreciation for that type of work or role. This way, appreciation can be spread out amongst many categories of helpers, increasing the visibility of the variety of help and support that members contribute to their community. This type of stationary board addresses one of the design limitations of using a news feed to facilitate care-mongering in an online group, which is that important posts can get buried by the algorithm if the comment-activity level drops or many other posters are actively posting on the group (Knearem, Jo, Tsai, & Carroll, 2021), even if the

post is of importance to the group as a whole. We imagine that the thank you board could replace individual posts of appreciation on the timeline, which can be difficult to recognize as appreciation.

6.4.2 Fostering Participation in Pro-Social Activities

Posts displaying outcomes of successful collective pro-social activities (e.g., offering a channel to plug in resources or abilities to help the community) can nudge other members to be involved in pro-social activities. For instance, members created threads containing photos of donations from the public for local hospitals (Section 4.1) and updates on how much soup was made and delivered with via community donations (Section 4.2), which served to remind those who worked together for the cause of their positive impact on the community and acted as proof to other members that the community served those in need. These successful products of neighborly cooperation and achievement of a common goal can lead to increased CCE (Carroll & Reese, 2003). Those who worked together recognize that their efforts succeeded and believe that they can achieve their goals through similar pro-social activities again, which makes it more likely for them to participate in the next one. Other members can recognize that collective efforts are out there to help the others in the community and can gain beliefs that their community can cope with difficult situations. Furthermore, such visualizations of delicate collective products encourage them to become involved in the future because individuals are more likely to participate in groups which are successful (Zaccaro, Blair, Peterson, & Zazanis, 1995), which may lead to increased community resilience. Indeed, we observed that commenters reached out to posters to learn how they could contribute to the initiatives that were discussed in the post or thread.

The goal of online care-mongering is providing support during a disaster, which necessitates participation in pro-social activities. Maintaining activity on the group is necessary for care-mongering groups to persist amidst a long-lasting disaster. One way this could be supported is to incorporate a digital “picture book” of member-organized civic initiatives that serve local needs. The picture book could be a feature separate from the general news feed, which, similar to the implication in 5.1, addresses the design limitation of news feeds with respect to posts

being buried by the algorithm. The picture book would act as a visual account of group member's civic initiatives and other care-mongering contributions. By depicting what other's are doing, it is easier to imagine what it would be like to participate. The picture book could have a sorting feature for the initiatives, e.g., chronological, by organizer, or by type of initiative. Images of outcomes and a short description of the impact could bring awareness to other members that their community is making strides towards addressing needs. Under each initiative, a quick explanation of opportunities to contribute and when the next instance will occur can nudge members towards participation. Additionally, it can facilitate user interactions which can lead to future participation such as recognizing the impact of an initiatives by giving "kudos", or indicating willingness to help. Providing visual content about care-mongering initiatives in one place can better highlight community capacities. The digital picture book can fit into the ecology of the group as a central repository for the products of care-mongering initiatives, e.g., mask making or bowls of hot soup. Rather than post new updates for recurring initiatives as separate posts on a news feed, members could add new photos to their initiative in the book.

6.4.3 Safe Spaces to Create Weak Ties During The Pandemic

The pandemic changed the nature of social interactions; familiar in-person events and activities were suddenly cancelled and people had to find alternative ways to engage with other members of their community. As an act of kindness towards reducing everyone's risk of catching or spreading the virus, we observed that group members used the care-mongering group to socialize virtual community events, hold online meet-ups with others who were following social-distancing measures, and to check in on lonely individuals in their area. The examples of virtual gatherings as outlined in Section 4.3 *continuing social interactions online* show that members promoted safe socializing and offered ways for people to meet new people in their community. Similarly, in Section 4.2, *supporting one another's needs*, members expanded their social networks through becoming volunteers at community initiated events in the off-line space.

Developing new weak ties was possible in care-mongering groups as they often have a low barrier to entry, i.e., anyone can join, which means that most members join without necessarily knowing other members beforehand. One of the strengths of weak ties is that they can lead to the acquisition of valued resources for the local community (Granovetter, 1973), i.e., aid in a crisis situation. First, people can get involved in community efforts that were previously unknown to them through a wider net of social contacts. For example, commenters who helped organize the drive-by birthday parade later followed up on a post about the outcome to ask how it went and offer additional support. Second, participating in care-mongering provides opportunities for people who do not have enough support through weak ties in their network to create more weak ties (Spade, 2020a). Weak ties, being distant social relations characterized by infrequent interactions, provide opportunities (e.g., insights into how others are helping each other) and integration (i.e. forming new acquaintances) into the community (Granovetter, 1973). The insights and network that weak ties bring make developing CCE and resilience possible at the community-level.

Based on our findings in 4.2 and 4.3, there are implications for increasing social presence to form weak ties in the care-mongering group. Rather than majority text-based communication, which is the norm in social media yet leads to low social presence (Koh, Kim, Butler, & Bock, 2007), multi-signal communication interfaces with higher social presence (i.e., text-based chat, audio, and video) such as “virtual rooms” could be built into the group. Borrowing aspects of the community’s identity builds cohesion (Carroll, 2014), for example the virtual rooms could be named after local buildings or other places of interest, which can help people feel like they are interacting with others in a familiar place in their own town. If the virtual rooms were always available, people could spontaneously drop in and meet each other or plan care-mongering initiatives together. This could lead to social experiences which form unique new ties in the community and create a foundation for additional care-mongering initiatives.

Moreover, some initiatives that were planned online through the care-mongering group required group members to interact with unknown others offline (e.g., in 4.2 members could plan the community soup drive on the group, but had to go out into the community to deliver the soup). In such cases, people didn’t have an easy way

of finding out which safety protocols would be in place when such information could increase their confidence in choosing an offline initiative with an acceptable level of risk. Although people may want to meet each other in-person, they also want to keep themselves and others safe from the coronavirus, therefore they need to be confident that the initiative would not put them in too close proximity to unknown others and is therefore safe to join. To address this, initiatives posted to the group could include tags that mention the safety protocols that are in-place for the event such as the type of event (i.e., virtual or in-person;), the maximum number of people allowed to gather in-person to allow for social distancing, masking/hand washing requirements, and the location of event (i.e., indoors or outdoors). This can support the decision-making process when considering how to contribute to various care-mongering initiatives.

Creating new digital artifacts such as the *thank you* board for public acknowledgement of pro-social activities, the *picture book* of outcomes of care-mongering initiatives and bringing in a multi-signal communication interface for social presence through the use of *virtual rooms* codifies care-mongering and enriches disaster-relief practices. This study fills the gap of understanding the care-mongering movement as a form of disaster relief in the crisis informatics literature by examining care-mongering in online platforms as a bottom-up response to long-term crises. Enhancing appreciation of others who have done good deeds in the community, increasing participation in initiatives, and developing community social networks can create awareness around care-mongering in the wider local community, allowing fellow citizens a glimpse into the capacities of other community member's to provide care as a form of disaster relief.

Limitations and future work. We observed one care-mongering group on Facebook and analyzed each post in detail to understand how members used social media to practice care-mongering. Our key focus was not on obtaining broad trends, rather it was to deeply understand care-mongering practices. Our group was located in Texas, USA, a location with a high-level of community COVID-19 spread. Future work could analyze additional care-mongering groups to see if new themes arise from groups in other regions or countries.

6.5 Chapter Summary

We investigated care-mongering practices in an online care-mongering group and found that socio-technical systems facilitate care mongering through three facets, which can bring visibility to community beliefs (i.e., CCE) and capacities (i.e., resilience). Our analysis surfaced design implications for further augmenting care-mongering in care-mongering groups on social media during long-haul disasters. The care-mongering movement is an example of a community co-producing disaster relief and is key to effective bottom-up, community-based care. If we can leverage social media to grow care-mongering, we can continue to find new ways to develop the capacities of local communities. Disasters such as the COVID-19 pandemic remind us of things we take for granted. Perhaps this crisis can help us realize our collective dependency and the possibilities that arise through caring for one another.

Discussion & Concluding Remarks

The COVID-19 pandemic provided a boost to mutual aid, as hundreds of new groups that self-identified as *mutual aid* were created by concerned citizens when the first stay-at-home orders were announced in March 2020. The findings from the set of studies in this dissertation suggest that the facilitation of mutual aid through social media was able to fill key gaps in service due to a variety of disruptions caused directly or indirectly by COVID-19. To summarize the key findings from the works presented herein, Chapter 3 scenario-based claims analyses of three main user groups showed the benefits and challenges of the use of Google Sheets or Facebook Groups to facilitate aid between members of local communities, i.e., people engaged in community-based disaster relief through posting or responding to Facebook aid request posts or proactively offering aid. In many cases, successful aid exchange was incumbent on other people’s interactions with aid requests (e.g., comments on a Facebook group post), which made it more likely that the Facebook algorithm would prioritize that post on the group’s timeline. In Chapter 4, interviews with online mutual aid group administrators demonstrated how mutual aid groups facilitated aid to resolve immediate needs, lessen the impact of chronic community issues, and work together on justice-centered activities aimed at building justice into the local community. This study also surfaced a wide variety of disaster relief through generalized exchange: from hygienic supplies (e.g., masks, sanitizer) to food, housing, household essentials, and much more. Because food aid was a chronic issue that was common to all the groups that our interviewees administered, I took a deep dive into *food aid* in 5. Two main sources of tan-

gible food aid emerged: urgent, immediate food aid and initiatives for long-term food support, both of which contributed to autonomous food security. Finally, in Chapter 6, citizens engaged in acts of kindness with their neighbors in locally-based care-mongering groups, which brought visibility to community beliefs (i.e., CCE) and capacities (i.e., resilience), both of which can help communities deal with the challenges of an extended period of active disaster.

Cumulatively, these studies reflect the nature of mutual aid for community-based disaster relief during the first year of the pandemic. Mutual aid is purposely flexible and open, and is rooted in the mutual aid principles of autonomy, solidarity, and participation (Spade, 2020a). This contrasts with the one-size-fits-all approach of many charities and other top-down organizations (Spade, 2020b) who provide inflexible care only to people who qualify for it, regardless of an individual's specific situation. Rather, local citizens are empowered when they participate in mutual aid groups that reflect the uniqueness of their particular community. In this way, mutual aid can be applied to a constellation of community issues that leave vulnerable people's needs unmet, as vulnerable people are often the experts on their own situations and have first-hand experience on what works in their specific context versus what doesn't. Empowering people to help each other can address uneven gaps in service which are bound to be numerous in a large and diverse country such as the United States. Participating in mutual aid and care-mongering lends toward community innovation; people are empowered to suggest, create, and participate in initiatives that align with their beliefs and experiences. Citizens connected through online groups and worked together to deliver support off-line, often in ways that had not been tried in the past, such as the prevalence of community fridges that were created through mutual aid. The following sections highlight the main takeaways from the findings and implications that were laid out in the studies that comprise this dissertation.

7.1 Facilitating Disaster Relief Online

During COVID-19, mutual aid for disaster relief relied heavily on online platforms, specifically social media, to connect people for immediate and long-term relief, as well as to organize nascent justice-work for the betterment of the chronic commu-

nity needs that became visible due to the pandemic. This was in contrast to many of the mutual aid self-help activities which were initiated on-the-ground through mutual aid networks in past disasters such as Hurricane Sandy (Bondesson, 2020) in New York City.

7.1.1 Fostering Participation via Online Interactions

In normal contexts, local communities are sustained by member participation in civic initiatives (Carroll, 2014), many of which are conducted in-person, such as cultural events and city-wide trash clean-ups. However, during COVID-19, many of the usual civic activities were put on hold or cancelled. In the context of a disaster, community participation becomes even more crucial when fractured supply chains and strained social resources cause bottlenecks in top-down approaches to disaster relief.

Mutual aid is a form of publicly visible community engagement that can craft a positive community identity (Carroll, 2014). In the online groups, public-facing interactions with one's neighbors occurred through discussions on posted topics, displaying acts of appreciation via posts and threads, and by engaging in generalized exchanges through commenting on aid request posts. Groups extended visibility of disaster relief efforts through the offline initiatives that were brought to fruition in the physical public community space that could be seen by anyone passing by. Members posted online about how they jumped in to fill a community fridge, while others offered public acts of appreciation through a thoughtful comment or post in the group. The findings in Chapters 4 and 5 suggest that participating in generalized aid exchange for disaster relief with their neighbors got people interested in what else was happening in their local community, and what they could do to sustain disaster relief for the longer-term, i.e., reaching towards Level Two and Level Three of the Mutual Aid Hierarchy of Community Needs (See Section 6.2 in Chapter 4 for more details).

Additionally, viewing products of actualized CCE, e.g., the outcomes of pro-social activities that were on display as posts in the care-mongering group in 6, may nudge other group members towards participation in future initiatives. These posts could remind those who worked together of the positive impact their ini-

tiative had on the community, or could act as proof to other members that the community served those in need. In online communities, members who are not frequent participants in online interactions are more willing to work together when they believe that what they do can make a difference (Ling et al., 2005). For participants, they can see evidence that their efforts succeeded and further develop collective beliefs that autonomous groups of community members can deliver disaster relief through similar pro-social activities, which in turn makes it more likely for them to participate in the next one (Zaccaro et al., 1995).

Finally, engaging in civic activities presents a pathway for people to perceive those living around them as their *neighbors* rather than strangers, which builds solidarity and mutual trust (Putnam, 2000; Seyfang, 2003). As elaborated through the Mutual Aid Hierarchy of Community Needs in Chapter 4, the relational nature of generalized reciprocity is key to building trusting relationships. Over the long term, it can bring greater connectivity and cohesion to the group (Baker & Dutton, 2017; Carroll et al., 2005). Generalized reciprocity as a form of civic engagement not only facilitates disaster relief in the immediate term, but the initiated weak ties can bring additional community capacities to the table. Increasing the flow of resources within a network can further support successive and therefore sustainable disaster relief (Dutton & Ragins, 2017). In Chapter 4, some of the online mutual aid groups organized around issues of social justice (Section 5.4). Engaging in direct action justice-work or seeing other group members talking about how to address issues of social justice is another way that people in the group can develop their collective beliefs that their community is capable of addressing its' own systemic issues, which could increase CCE, i.e., (Carroll & Reese, 2003). (see Chapter 6 for more on CCE and community resilience).

7.1.2 Interweaving Online and Offline Disaster Relief

The online mutual aid groups that were part of the research in this dissertation inter-weaved online and offline engagement to realize disaster relief. As explained in 4, organizing in the online space provided a way for people to take care of their neighbors without encountering risks associated with meeting people with distant relations to themselves in-person. Many group members were willing to meet with

others in-person, despite the heightened health risks, for the purpose of enacting disaster relief. In Chapter 6, people took care of their unhoused neighbors in the care-mongering group by bringing them bowls of homemade soup and distributing coats during wintertime. In 5, online mutual aid group members showed neighborly care when they took food-related initiatives from online organizing to their physical surroundings. For example, they installed infrastructure to support aid delivery around the community (e.g., a community fridge which was filled by neighbors for neighbors). The presence of tangible infrastructure could bring visibility of the mutual aid initiatives to the wider community, including people who may not even have been aware of the online groups. The presence of relief efforts in local spaces could widen the reach of the group by assisting people with food who may not have Internet or Facebook access, and therefore be unable to post an aid request. In the care-mongering group in Chapter 6, members reported the results of their offline initiatives back to the group when they posted photos of the initiative or updates about the work. Visual representations of collective efforts signify success in aid delivery, which can foster future participation in disaster relief activities. Outcomes that have a positive affect on people in need can boost community resilience.

7.1.3 Appropriating Familiar Platforms for Broad Participation

Social media was not created for the purpose of organizing disaster relief; rather, it was created to connect friends and family or to enable the sharing of lifestyle content. As such, many people already had accounts or knew how to use popular social media such as Facebook. Even though the concept of mutual aid may have been new for many users, by not having to learn a new platform and ease of access, the online mutual aid groups may have lowered the barrier to participation in mutual aid activities. Due to the urgency with which the pandemic unfolded, there was no time to create a new platform just for disaster relief. Instead, group administrators had to appropriate existing platforms (i.e., Facebook, Google Drive) and configure them in novel ways to facilitate disaster relief (Soden & Owen, 2021).

In Chapter 3, facilitating disaster relief through social media platforms such as Facebook can be enhanced by configuring the features which were already enabled

within the platform or by modifying the use of existing features. This has implications for streamlining online aid delivery: the scenarios and associated claims identified aid request templates for posts, controlling the visibility of aid request posts through “bumps”, the presence of user profiles, and a mechanism for enabling casual conversation between people engaging in disaster relief (i.e., posts, comments, and private messages) as capabilities that can be either implemented as a group rule, e.g., a template or hashtag that should be used to make a request of the group, or utilized by posters during reciprocal exchange. Similarly, members of the care-mongering group in Chapter 6 appropriated Facebook groups for care-mongering initiatives by utilizing posts to start “thank-you threads”, therefore keeping the words of appreciation easily discoverable rather than fragmented across multiple posts, most of which would have more quickly been buried by other posts in the group’s news feed. In the early days of the pandemic, group members had to innovate solutions to make sure that their posts were seen, find people to help or to spread acts of kindness.

As this set of studies demonstrates, community participation in civic activities can continue during a global pandemic despite social-distancing restrictions through engagement with one’s neighbors in online mutual aid and care mongering groups. Because there was not a platform that was designed specifically for disaster relief for groups to use, administrators and group members had to come up with their own creative solutions to utilize existing features to conduct disaster relief. In particular, Facebook groups were commonly appropriated; they were free to create, and administrators could ask potential members to agree to group conditions before approval as members. Mutual aid groups that used Facebook groups did so to facilitate generalized exchange amongst neighbors. Some mutual aid groups used Google Sheets (part of Google Drive) to facilitate generalized exchange. A link to the Sheet was posted on the group’s website. Google Sheets is also familiar to many people, and because Sheets is an office productivity tool, it offered an organized way for people to request aid and for aid providers to sort through aid requests. The care-mongering group used Facebook groups to facilitate discussions and initiatives aimed at bringing awareness and visibility to the acts of kindness that were taking place during COVID-19.

7.2 Empowering Citizens Through Autonomous Care

Both mutual aid and care-mongering movements utilize a bottom-up, flat organizational structure. Such groups are purposefully fluid, which means that people can utilize the online groups to deliver disaster relief in ways that work best for their populations' specific circumstances. The autonomy that people in the online groups have to bring up ideas and innovate on disaster relief can empower them towards actions that can help their local communities further develop collective capacities to provide aid. This is especially crucial during a period of extended state-of-emergency, such as COVID-19, where social resources were continually strained and many people who were not previously in need of community support could find help.

7.2.1 The Strengths of Autonomous Aid

While most of the groups that were represented in Chapters 4 and 5 were created in light of the COVID-19 crisis and were inspired by the core values of mutual aid, they were not all administered in the same manner. Instead, because mutual aid is fairly unstructured compared to other types of organizations that facilitate disaster relief, i.e., government programs and charities, groups were free to *let the community needs guide them*. This allowed groups to tackle the issues that were most important to their community in a way that was appropriate for their demographics.

In Chapter 4, online mutual aid groups enacted core values of mutual aid through non-hierarchical and non-bureaucratic structures with aims to develop individual and community competence to resolve their problems, ideally without dependency on external organizations. Unlike charities and government-sponsored social welfare programs which employ means testing and have strict bureaucratic processes, mutual aid groups do not employ a one-size-fits-all model; rather they favor flexibility in the customization of disaster relief to the demands of the community, and to changing course as new demands unfold. This strength allows them to go where the need is and to develop initiatives on-the-fly to quickly address needs.

Similarly, autonomous working groups in Chapter 4 initiated long-term and self-sufficient community-based means of food security, which could reduce community members' reliance on centralized food distribution systems. For example, usual resources for food, such as local food banks, were inundated with requests, and the government food assistance program, Supplemental Nutrition Assistance Program (SNAP), was often difficult to access during COVID-19 due to backlogs in applications and higher-than-usual levels of need. Amidst disasters that can cause economic disruption and food shortages, both immediate and sustained access to food is vital. Online mutual aid facilitated organized initiatives to address food insecurity independent from formalized welfare programs with their own capacities. Such self-sufficiency can help communities to be more prepared to handle the next disaster because members have gained experience in organizing disaster relief and built networks with previously unfamiliar neighbors. The foundation on which aid was delivered effectively can be re-activated in future crises, which could contribute to community resilience.

7.2.2 Bringing Dignity to People Impacted by Disaster

In Chapters 4 and 5, online mutual aid groups were a source of critical resources for their local communities. In Chapter 4, mutual aid groups aimed to help people without being critical of the type of aid being requested. For members of the groups, including administrators, identifying and addressing immediately apparent needs was an urgent priority. In line with the self-determination core value of mutual aid (Spade, 2020a), group members were encouraged to exchange disaster relief through respectful interactions with aid requesters, whether by facilitating informational resources that might help or by providing direct tangible aid. With regard to food aid, Chapter 5 recounts that group members who were involved in tangible food aid found it crucial to provide culturally-inclusive food support, e.g., making sure that people received familiar food items. Food choice is not something that is emphasized in most food banks; instead, food banks distribute the food that is available that day to people who meet the organization's requirements that demonstrate need, often without consideration for dietary preferences, allergies, or cultural food preferences. As noted in Section 5.4, many groups encouraged

members to learn about mutual aid core values such as *solidarity not charity*, which equates to the lack of a dividing line between givers and receivers, where everyone shares what they can and takes what they need. This was intended to orient people new to mutual aid into the practice and help people to recognize their unique capacities for helping others, even if they were not usually associated with disaster relief (e.g., helping families get needed items to celebrate holidays).

The scenarios outlined in Chapter 3 further demonstrate how mutual aid can nourish people with proper humanistic care. The user in all three scenarios could see fellow citizens interacting with their posts. For example, needs being met through generalized exchanges in the comments beneath the post, and people “bumping” posts for visibility. These activities represented common interactions in the scenarios and suggested neighborly care. Because mutual aid values *solidarity, not charity* (Spade, 2020a, 2020b), aid requesters do not have to share personal details about their situation or give proof of income in order to receive help; rather, they only need to state their request and tell others how they can help. Having a personal choice in how to ask for support from others humanizes vulnerable people, and can remove the stigma associated with *welfare support*. As such, mutual aid and care-mongering are community-based disaster relief approaches which highlight the importance of treating all people kindly, which puts a face to disaster relief and builds dignity and care.

7.2.3 Weak Ties Hold Capacities for Disaster Relief

Weak ties are those familiar faces that an individual encounters infrequently or outside their primary social circles (Putnam et al., 2000), and can act as bridges that connect different social groups in a community (Granovetter, 1973). As such weak ties build relationships between people, and in a period of disaster, these relationships can be crucial facilitators of resources. In Chapter 6, the care-mongering group members moved in-person events online and, in doing so, brought forth a new way of meeting new people and building weak ties in the community. People could come to know community efforts that were previously unknown to them through a wider net of social contacts. Additionally, participating in online care-mongering provides opportunities for people who do not have enough existing

social support to create more weak ties. As noted in Chapter 4, facilitating aid for immediate needs relied on a network of people engaged in generalized exchange, and in many such exchanges, the people involved may not have interacted with each other before the exchange. The development of weak ties between people involved in generalized exchange can bring community cohesion. In Chapter 3, the scenario about aid requesters tells the story of how aid requests are made on Facebook groups, usually by providing a bit of background information as context for the request. Doing so can also validate that the poster is a real person who is struggling within own community. As such, when other members engage with the aid request posts, even if support cannot be provided, weak ties between the poster and commenters are built when people become familiar with each other through discussions on the thread. Lightweight social experiences, such as involvement in generalized exchange, can form new weak ties in the community which in turn creates a foundation for future reciprocity.

7.3 Bringing Visibility & Awareness to Community Capacities

The COVID-19 pandemic had a focusing effect on the health of the local community. The depth of individuals' immediate needs and the severity of chronic social conditions that were previously hidden by social services became visible when COVID-19 exposed gaps in social services and fractured many top-down organizations' capacity to provide disaster relief. The studies in this dissertation highlight the ways in which mutual aid and care-mongering brought visibility and awareness to community capacities which could support disaster relief in the short and long term.

7.3.1 Visibility into Chronic Needs can Help Communities Address Them

After the onset of COVID-19, chronic social issues that were previously well-hidden enough to escape proper public deliberation, such as food insecurity and housing insecurity, were suddenly front and center. Chapter 4 discussed at length how

online mutual aid groups got insights into chronic community needs by noticing commonalities in need across multiple members of the community through the aid requests that were posted to the groups' timelines. As such, one way that disaster relief initiatives developed over the course of the first year of the pandemic was the shift in focus from addressing individual aid requests to recognizing chronic needs and finally delivering aid en-mass to people in need.

Section 6.2 introduced the Mutual Aid Hierarchy of Community Needs as having three layers. Firstly, identifying and addressing immediate needs is at the bottom layer; developing long-term support for chronic needs comprises the middle layer, with transforming social systems taking place at the upper-most layer (see Figure 4.2). This represents a shift towards less concrete and more ambitious systemic and symbolic goals. In order to achieve the highest level of community-based disaster relief, i.e., the transformation of social systems so that immediate needs bred of chronic community issues are reduced, the first thing that mutual aid groups should focus on is addressing the basic needs of community members by helping their most vulnerable get to a place where physiological needs are met. See Chapter 4 for more details.

Chapter 5 further elaborated on the chronic community condition of food insecurity. Because mutual aid relies on community capacities to realize disaster relief, many groups had difficulty sourcing enough food aid to fulfill immediate food aid requests over a long period. As the groups realized the severity of food insecurity in their area, they developed ways to use the group to structure long-term food aid initiatives that were designed to help address the core issue of chronic food insecurity. As such, awareness of this issue prompted both online and offline initiatives to aim at providing efficient food support to both online group members (e.g., a way to sign up for grocery delivery programs) and wider community members (e.g., through visiting a physical community fridge location).

7.3.2 Appreciating Others' Acts of Kindness

. Appreciation for others who are helping vulnerable community members is important during periods of community distress, where CCE can wane over a long period of active disaster, such as COVID-19. In Chapter 6, online care-mongering

group members brought *visibility* to people who were engaged in essential work, i.e., work that was required to keep communities running that often had to be done on-site, thus putting those workers at risk of catching or spreading the virus. In the care-mongering group, posts of appreciation to both frontline healthcare workers as well as a wider range of community members, including mask makers, food donors, and people who provided goods to families in need, were highlighted. The roles being appreciated in the group were not commonly considered during the pandemic, as most acts of appreciation that made the national news were directed to frontline workers (Webber et al., 2020). Raising awareness about community members who were risking their safety to provide essential services to others can shed visibility on previously unrecognized community assets. Additionally, people who are appreciated in a way that was visible to the community that they supported in their role as an essential worker could feel that their efforts were valuable to the community (Di Fabio et al., 2017), which can contribute to their feelings of social worth (Rosenberg & McCullough, 1981). As discussed in Chapter 6, such expressions of gratitude can help other people recognize their community's assets and draw new people in to community-based disaster relief. Both of which can be lead to increased CCE for members of the care-mongering group.

The studies in this dissertation provide insights into developing and maintaining a variety of disaster relief initiatives which were aimed at addressing users' informational, instrumental and emotional needs. By facilitating disaster relief online, the groups in this study were able to foster community participation, interweave online and offline disaster relief to cover a variety of members' needs and personal situations, and could appropriate popular social media platforms to reach a large number of people. Mutual aid and care-mongering groups empowered citizens through autonomous care, leveraging the strengths of autonomy to deliver efficient aid that was appropriate for their community demographics, which brought dignity to those impacted by the disaster. Through the online groups, members developed new weak ties in the community which bridged social groups and could lead to increased facilitation of resources. The groups also brought visibility and awareness to their community's capacities for disaster relief through appreciating fellow community members and by recognizing and addressing chronic community issues.

7.4 Revisiting Lost Community

The idea of the local community as “lost” spans generations. In the late 1800s, Tönnies (2001) considered the industrial revolution and emergence of megacities to be the demise of community bonds. Later, Warren (1963) blamed the loss of locally autonomous community on horizontal integration of major social systems such as schools and social services. In the modern day, Putnam (2000) centered the rise of suburbanism and individualized leisure activities as the cause of the lack of interest in civic engagement. In spite of all this negative talk about the death of the community in the United States, many local communities have become lively and vibrant places. People develop community attachment through emotional bonds with neighbors and familiar places, which can lead to a desire to engage on a deeper level with their community than those with the absence of such attachments (Lewicka, 2005; Manzo & Perkins, 2006). Examples abound in the HCI literature on the use of ICT to enhance local community engagement, e.g., community networks (Carroll & Rosson, 2013), exploring local events (Knearem, Jo, Wang, & Carroll, 2021) and familiarizing oneself with community heritage (Han et al., 2014).

During times of crisis when fearmongering and uncertainty are high, it may seem like local community is lost or fragmented. However, the reality is that people by and large come together to support each other (Solnit, 2010). The studies in this dissertation provide additional evidence of the community coming together to care for its’ most vulnerable members during a long-haul disaster through citizen-based disaster relief activities and initiatives.

7.5 Reflections on Working with Mutual Aid Organizers

Overall, the participants in Chapters 4 and 5 were enthusiastic about talking to us about the groups that they managed. The interview study reflects the depth of the discussions that they had with one or more members of the research team, and that participants felt comfortable sharing their experiences, even if sometimes those conversations could evoke unpleasantness (e.g., unhoused community

members, the prevalence of hunger in the community, and other vulnerabilities). Researchers within HCI have begun to expand considerations of the societal implications of our research, with a focus on how understanding oppressive systems operate in society (Keyes, Hoy, & Drouhard, 2019) and building for social justice through pre-figurative design, i.e., developing social relationships with community activists, considering resource distribution, and investigating counter-institutions (Asad, 2019), of which mutual aid is one such counter-institution. In line with this recent trend in research, I spent some time reflecting on my experience working with mutual aid group administrators (i.e., human subjects participants) and have come up with a short list of best practices for the research community to consider when initiating research studies that involve participants in online mutual aid groups.

7.5.1 Familiarize Oneself With the Concept of Mutual Aid

Firstly, researchers should familiarize themselves with the concept of mutual aid prior to engaging with people involved in mutual aid activities. Many grassroots organizations have created amazing resources for starting a group, learning about mutual aid principles as well as the history of mutual aid, e.g., Big Door Brigade ¹ and Mutual Aid Disaster Relief ². Some worthwhile books on the topic are Dean Spade’s *Mutual Aid: Building Solidarity During this Crisis (and the next)* (Spade, 2020a), *A Paradise Built in Hell* (Solnit, 2010) and *Pandemic Solidarity* (Solnit, n.d.) both by Rebecca Solnit.

As an HCI researcher, I understand how crucial it is to develop empathy with users. Holding the ability to appreciate others’ perspectives and furthermore, to empathize with people’s lived experiences, is key to developing a high level of trust in participant-researcher relationships (Wright & McCarthy, 2008). While this is important in any research context, this can become a little bit challenging for researchers who are interested in learning about people’s experiences from people who may feel marginalized in mainstream society. A couple of the interviewees mentioned that they faced significant personal challenges and hurdles to their well-being in their life in response to a question about why they were interested in

¹<https://bigdoorbrigade.com/>

²<https://mutualaiddisasterrelief.org/>

mutual aid. I was initially taken back by the candid-ness with which they spoke, and decided the best course of action was to make space for them to answer the question in the way they wanted to, even if it caused some discomfort to me. For mutual aid organizers who put forth significant effort to administer online mutual aid groups with care and compassion, I found that an understanding of mutual aid as a concept rooted in history was not enough. I needed to empathize with my participants' situations, and the situations of the people who were experiencing hardship under the chronic social conditions that the group was trying to address. This goes a long way in facilitating engaging and meaningful conversations.

7.5.2 Create a Safe Participant Environment

Returning to the previous point, the human-subjects participants whose experiences were illustrated in this dissertation were open and willing to share the inner workings of their group, which included community challenges, justice-related efforts, and how the pandemic affected the livelihood and well-being of members of their local communities. This could not have occurred without them feeling that the direction and scope of the interview were within their control. However, to get to the point where these often sensitive conversations could happen between two unfamiliar parties, it was especially important for the research team to create an environment that felt safe and secure for each participant. Offering options for how we could connect, e.g., via phone, video, or email, gave interviewees an opportunity to choose the level of personal sharing that they were most comfortable with. For example, a couple of participants who preferred to talk over the phone were concerned that their physical identities would become known through a video recording of the session, which could put them in a difficult situation if the things that they told us to be happening in the mutual aid group were subject to opposing viewpoints (e.g., one group advocated for a city-wide rent strike to bring visibility to the costs associated with gentrification). We also asked for oral verification that it was okay to record the conversation, and while no one took us up on it, we told participants that at any time we could take the conversation "off the record" or remove data if the participant said something that they would rather not have. Lastly, members of four groups requested information about the

research team before agreeing to the study. They told us that they wanted to know about the researcher, the research goals, and plans for disseminating the work as a way to verify whether or not participating would be suitable for themselves and not pose an undue hardship or privacy concerns towards the people in the groups that they administer. In these cases, the research team presented a PDF with a description of the research goals and short bios of the research team, a copy of our institution's IRB, or both.

7.5.3 No Leaders, No Followers

I did not conduct human-subjects research with any participants who did not first-and-foremost self-identify as a mutual aid group administrator. Due to the flat structure of mutual aid, and the fluid user roles described in Chapter 3, it is possible that the administrator interviewees are also users of mutual aid, and may in that context, be a vulnerable type of research participant. Due to ethical concerns around recruiting vulnerable people who were users of mutual aid, we first verified that the participant wanted to talk with us as an administrator, and we only asked about topics that were related to administering the group or group dynamics, rather than about the individual's history with mutual aid.

Through this process, I learned that most mutual aid organizers and group administrators do not consider themselves as “leaders”, even if conventional wisdom would suggest that a role of organizer or administrator is a leadership role. Instead, in line with the mutual aid principle of “solidarity, not charity” (Spade, 2020a), people who participate in mutual aid advocate for equality of member status and power, shared leadership, and consensus-based decision-making (Shepard, 2014; Spade, 2020a). During interviews, I would find myself occasionally ready to ask the interviewee questions as if they were a group *leader*, such as “How do you manage the group?”. The first time I slipped and asked a question like this, the interviewee re-framed the question to something such as “How does the group manage the group?”, and then discussed how group rules and decisions were made collectively and through consensus. Because mutual aid can drift to where the needs are, i.e., is fluid, one member acting alone can rarely make a big decision without meeting the ire of other group members. Therefore, because mutual aid

differs from scaffolded organizational structures, such as that of a charity, it is important to keep mutual aid principles top of mind when asking about organizational practices in the mutual aid context.

7.6 Limitations and Future Work

This dissertation outlines the qualitative studies that I undertook to understand how community-based relief was facilitated during the COVID-19 pandemic via online platforms. At the time of this writing, the pandemic is on-going without an end in sight, which puts forth opportunities to explore how community-based care evolves in future phases of the pandemic. As is the case with qualitative work, I focused on understanding *how and why* community-based relief facilitated necessary resources to those in need in local communities and arrived at nuanced accounts of online mutual aid and care-mongering. Future work could involve quantitative studies to find out how common my themes are across a larger population in the United States. It could also focus on non-US locations to discover additional ways that communities came together to provide relief in other parts of the world. Finally, it would be interesting to better understand the demographics of online mutual aid / care-mongering as such studies could identify and work towards addressing persistent resource gaps in various populations.

7.7 Concluding Remarks

Throughout this project, I used multiple qualitative methods to understand how online mutual aid groups facilitated various types of aid to various people in local communities across the United States during the COVID-19 pandemic. I did this to triangulate my findings, and in doing so believe that I arrived at a clear account of how online mutual aid operated during the first year of the pandemic. The scenario-based claims analysis brought design implications for commonly used socio-technical systems for facilitating aid to light, while the interview study elucidated the scenarios, gave weight to the claims, and provided additional context for the content of the posts outlined in the thematic analysis of the care-mongering Facebook group. I imagine that the studies contained in this dissertation could sup-

port community organizers and other local citizens who are interested in working towards a resilient local community at the hyper-local level (e.g., city or neighborhood). Leveraging these findings can support community-based disaster relief directions during the next phase of the COVID-19 pandemic, as well as provide a starting point for developing initiatives during a potential future long-haul disaster.

Interview Protocol for Empirical Study with Mutual Aid Organizers

A.1 Study Information & Informed Consent

Hello! Thank you for taking the time to speak with me today. Is this still a good time to talk?

Okay, great! Let me tell you a bit about myself and then I'll walk you through what you can expect for our call.

My name is Tiffany and I am a researcher at the College of Information Sciences and Technology at Penn State University. Nice to meet you. Today we will be talking about your involvement in your local mutual aid group. I am particularly interested in learning about your experiences as part of the group, your motivations for engaging, how you think the group is helping, and any other stories you want to share about these topics.

This is an informal chat, and there are no right or wrong answers to any of the questions, I am genuinely interested in your thoughts, ideas and experiences. The interview will take approximately 30-45 minutes. If you do not want to answer a question, we can skip it. Additionally, you can stop the interview any time if you feel uncomfortable.

The interview will be audio recorded for future transcription and notes. The audio files will be stored in a password protected directory and will be discarded once we finish the study. We may quote what you say during the interview in

an academic research publication, although we will not disclose your personally identifiable information, such as your name or email address. Any references to other people will also be anonymized to protect their privacy.

Do you have any questions before we begin? Do you consent to take part in the interview? *The interviewer will confirm the participant's consent to start the interview, otherwise the interview will end.*

Is it okay if I start audio recording?

A.2 Interview questions for organizers

A.2.1 Ice Breaker and Get to Know You

- Tell me a bit about yourself - have you volunteered in the local community before COVID-19?
- Are there any other organizations that you volunteer with?
- Tell me a little bit about why you became interested in mutual aid?
- How would you describe your role in the group?
- How often do you contribute to the group?

A.2.2 Community needs

- Tell me a little bit about the local community. What are the local needs?
- How did needs increase or change due to COVID-19?
- What needs do you see the mutual aid group serving?
- Who are you currently reaching?
- Who else in the community would you like to reach?
- Do you have any strategies to reach people who may need services from neighbors but not know about it or not want to ask?

- I found your group through Mutualaidhub.org. Have you registered the group anywhere else?
- Are you aware of other similar groups in your local area?

A.2.3 Online Platforms for Mutual Aid

- Which platform(s) do you use for your mutual aid group?
- Why did you choose the platform(s) you chose?
- What do you like about using [platform]?
- What do you wish was different / could be done differently?
- Is there anything preventing you from using different platform from the current one, such as price, availability?

A.2.4 Connections and Members

- Do you work with any other community groups on a formal/informal basis? If yes, which ones, and what do you contribute / they contribute to you?
- Do you receive resources from any other groups to distribute to members of the mutual aid group?
- Are there any members that stand out as being very helpful or responsive in the group? How do they help?
- Do you have any way to track the impact that you're making?
- What does your group do to draw more members?
- Who do you wish you could reach?
- What does your group do to deal with scams??

A.2.5 Adapting to Changes

- How has the group changed and adapted as the pandemic changes?
- What is your hope for the group as the pandemic continues?

A.2.6 Wrap Up

That's all the questions I have. Do you have anything else that you think I should know about any of the topics we discussed today that I haven't asked you?

Thank you very much for your time. Have a great day! [end recording]

Appendix **B**

Study Recruitment for Interview Study

B.1 Email template

Hello [name],

My name is Tiffany Knearem, and I'm a PhD researcher at Penn State University. I'm reaching out to you because I'm interested in understanding how mutual aid groups support the local community during COVID-19. I got your information from the [source].

I think you'd be a great person to talk to about this because you are involved in organizing a mutual aid group, and likely have insights on how the group contributes to the community. Do you have time to chat with me via phone or video for about 45 minutes to an hour during the upcoming week?

If you'd like to participate, please provide the following information: Your availability Monday - Friday between 8:00am and 5:00 pm CST) Preference for a phone call or Zoom video meeting

If you have further questions, please let me know.

I hope to hear from you soon. Thank you!

Cheers, Tiffany Knearem

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Vita

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Tiffany Knearem entered the Ph.D. program in Information Sciences and Technology at the Pennsylvania State University (PSU) in August, 2017. Prior to entering PSU, she spent time in industry at Silicon Valley (San Francisco Bay Area) tech companies where she worked in operations, project management and technical support. Before that, she spent one year teaching English abroad outside of Tokyo, Japan through the Japan Exchange and Teaching (JET) Program. Her educational background is in the humanities, having received dual Bachelor of Arts degrees in Psychology and East Asian Languages and Cultures from the University of Kansas in 2008.

She has wide-ranging interests in the areas of Human-Computer Interaction, Community Informatics, and User-Centered Design; her primary research focus is on understanding and enabling community innovation through information and communication technologies.