

Making Space for Support: An Exploratory Analysis of Pandemic-Response Mutual Aid Platforms

Tiffany Knearem
Pennsylvania State University
University Park, USA
tknearem@psu.edu

Chun Hua Tsai
Pennsylvania State University
University Park, USA
ctsai@psu.edu

Jeongwon Jo
Pennsylvania State University
University Park, USA
jzj5543@psu.edu

John M. Carroll
Pennsylvania State University
University Park, USA
jmcarroll@psu.edu

ABSTRACT

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, peer-to-peer care. In this paper, we are interested in teasing out significant design features that support the facilitation of mutual aid on online platforms. To this end, we conducted a scenario-based claims analysis of the two most widely used platforms for mutual aid, based on three primary user groups. Our analysis suggests that design for mutual aid platforms considers features which support request standardization and balanced visibility alongside validation and conversational interaction.

CCS CONCEPTS

• **Human-centered computing** → **HCI theory, concepts and models.**

KEYWORDS

disaster response, mutual aid, scenarios

ACM Reference Format:

Tiffany Knearem, Jeongwon Jo, Chun Hua Tsai, and John M. Carroll. 2021. Making Space for Support: An Exploratory Analysis of Pandemic-Response Mutual Aid Platforms. In *C&T '21: Proceedings of the 10th International Conference on Communities & Technologies - Wicked Problems in the Age of Tech (C&T '21)*, June 20–25, 2021, Seattle, WA, USA. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3461564.3461567>

1 INTRODUCTION AND RELATED WORK

The COVID-19 global pandemic began in Spring, 2020 [21] and has brought unprecedented hardship across the world. As of late April, 2021 in the United States, there were over 32 million cases

and at least 570,000 deaths attributed to COVID-19 [28]. Unemployment skyrocketed, reaching highs greater than those of the Great Depression [4], and the country grappled with the effects of economic recession [20]. Schools were closed or forced to adapt to virtual learning, which put millions of children and families at risk [12], while nationwide shortages and uncertainty around the availability of personal protective equipment [7], foodstuff and other basic necessities caused people to engage in hoarding and other panic-buying behaviors [16]. The pandemic took the United States by surprise, and the lack of a coordinated national response left it to individual states and local communities to decide how to implement protective measures. As the pandemic 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) [22] to access the resources that they need.

In response, we are witnessing a revival of reciprocity as people take it upon themselves to organize and participate in informal networks of neighborly help, called *mutual aid*. Beginning in mid-March 2020, Covid-19-related mutual aid organizations began to appear online. In such organizations, members exchange information, ask for various kinds of help, and offer to provide help for others. Participation is open to anyone in the community. Previously, researchers have investigated mutual aid as a form of peer-to-peer care in online health forums [17], gig economy labor [13] and ridesharing [19]. Mutual support has been previously investigated through co-design of systems such as Commonfare.net, a system which was developed to address commodification of social cooperation via social media [1]. This points towards the value in designing online platforms to address needs, relational support, and social values, which builds dignity into autonomous care. As the pandemic continues, understanding how information and communication technologies (ICTs) both support and challenge the effectiveness of localized mutual aid will provide important insights towards designing and using ICTs to support timely, egalitarian, peer-to-peer aid for future community-based relief.

Mutual aid is not a new phenomena. It emphasizes cooperation over competition, which Kropotkin [14] asserts is the driving mechanism behind evolution and the fundamental basis of life. It has a history based in political activism [14, 25], and is a grassroots, community initiated effort where people take responsibility for caring for one another, often born from the realization that the current

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.
C&T '21, June 20–25, 2021, Seattle, WA, USA

© 2021 Association for Computing Machinery.
ACM ISBN 978-1-4503-9056-9/21/06...\$15.00
<https://doi.org/10.1145/3461564.3461567>

government systems are not meeting the needs of the community [25]. Mutual aid favors a horizontal organizational structure with leadership and guidance from organizers and online group admins. Therefore, mutual aid participants, including leaders or administrators, can shift from a role of a provider of aid to that of a requester. In previous decades, mutual aid could be described as a localized movement, implemented locally by affected citizens during disaster response [24], as a response to social issues affecting communities such as hunger (e.g., Food Not Bombs), or as a way to bolster efforts to decrease disparities in marginalized communities [8].

Mutual aid differs from other forms of community care such as time banks, non-profits, and existing local networks. Time banks, such as Timebanks USA¹ or hOurWorld², are an example of an ongoing and generalized reciprocal exchange in 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 [2]. In contrast to time banks, deficits do not exist in mutual aid because offers of support and requests for support are not tracked.

Non-profits are structured organizations which often serve people experiencing financial or other hardship. Many non-profits often require their recipients to meet certain criteria in order to access services. Aid delivery comes from the top-down, and people who donate to the non-profit usually cannot specify a recipient for their donation. On the contrary, mutual aid is informal and without a central structure, which gives way for people to leverage their own resources when arranging for aid and delivering aid to others. Mutual aid does not exclude people from using services based on any criteria, rather it is *participatory* and favors building supportive social networks and relationships in the community [25].

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 reciprocal exchange. 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 very 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 [25].

In this study, our goal is to get an initial understanding of how the most popular ICT platforms that were appropriated by mutual aid organizations support mutual aid efforts during the Covid-19 pandemic in the United States. To this end, we conducted a scenario-based claims analysis based on Carroll and Rosson [6] of the top two most-utilized ICT platforms by mutual aid organizations: 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?

2 METHODS AND DATA ANALYSIS

To investigate our research questions, we used the publicly available Mutual Aid Hub pandemic-related Mutual Aid Group data set⁴ 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.

The data set includes 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 organizations who used a Facebook Group and also 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 [6]. 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 organizations 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 organizations 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 organization 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

¹<https://timebanks.org/>

²<https://www.hourworld.org/>

³<https://nextdoor.com/>

⁴available at <https://www.mutualaidhub.org/table-of-networks>

it represented the observations and objectives that we identified from the randomly sampled mutual aid organizations. 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 SCENARIO-BASED CLAIMS ANALYSIS OF USER GROUPS ON PLATFORMS FOR FACILITATING MUTUAL AID

Spade [25] 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 [25]. 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 organizations. 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.

3.1 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 laborious 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.

3.2 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 organization 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, 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.
- 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.
- + 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 Organization Administrators

In this subsection, *organisation 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.

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.

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 [26]. 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.

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 [27]. 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 [15]. This could also contribute to community collective efficacy, or the belief that the community is capable of taking care of each other [5]. 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.

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 [3]. 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 [10].

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 [11]. 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 [23, 29].

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 [18] and it further increases retention and commitment [9].

In this paper, we introduced pandemic-related mutual aid as an emergent form of community care in the United States. We conducted a scenario-based claims analysis based on observations of the two most utilized platforms for mutual aid during COVID-19, and arrived at preliminary design recommendations for mutual aid platforms.

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. In the future, we will build on what we've learned through interviews with mutual aid group organizers to better understand the successes and challenges of mutual aid, and explore the opportunities and limitations of mutual aid on other platforms.

ACKNOWLEDGMENTS

Many thanks to Mukund Srinath and our anonymous reviewers for their insightful feedback on this work.

REFERENCES

- [1] Chiara Bassetti, Mariacristina Sciannamblo, Peter Lyle, Maurizio Teli, Stefano De Paoli, and Antonella De Angeli. 2019. Co-designing for common values: creating hybrid spaces to nurture autonomous cooperation. *CoDesign* 15, 3 (2019), 256–271.
- [2] Victoria ME Bellotti, Sara Cambridge, Karen Hoy, Patrick C Shih, Lisa Renery Handalian, Kyungsik Han, and John M Carroll. 2014. Towards community-centered support for peer-to-peer service exchange: rethinking the timebanking metaphor. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. 2975–2984.
- [3] Charles R Berger. 1988. Uncertainty and information exchange in developing relationships. (1988).
- [4] David L. Blustein, Ryan Duffy, Joaquim A. Ferreira, Valerie Cohen-Scali, Rachel Gali Cinamon, and Blake A. Allan. 2020. Unemployment in the time of COVID-19: A research agenda. *Journal of Vocational Behavior* 119 (2020).
- [5] John M Carroll and Debbie Denise Reese. 2003. Community collective efficacy: Structure and consequences of perceived capacities in the Blacksburg Electronic Village. In *36th Annual Hawaii International Conference on System Sciences, 2003. Proceedings of the IEEE*. 10–pp.
- [6] John M Carroll and Mary Beth Rosson. 1992. Getting around the task-artifact cycle: how to make claims and design by scenario. *ACM Transactions on Information Systems (TOIS)* 10, 2 (1992), 181–212.
- [7] Jennifer Cohen and Yana van der Meulen Rodgers. 2020. Contributing factors to personal protective equipment shortages during the COVID-19 pandemic. *Preventive Medicine* (2020), 106263.
- [8] Daniela G Domínguez, Dellanira García, David A Martínez, and Belinda Hernández-Arriaga. 2020. Leveraging the power of mutual aid, coalitions, leadership, and advocacy during COVID-19. *American Psychologist* (2020).
- [9] Rosta Farzan, Laura A Dabbish, Robert E Kraut, and Tom Postmes. 2011. Increasing commitment to online communities by designing for social presence. In *Proceedings of the ACM 2011 conference on Computer supported cooperative work*. 321–330.
- [10] Bo Feng, Siyue Li, and Na Li. 2016. Is a profile worth a thousand words? How online support-seeker's profile features may influence the quality of received support messages. *Communication Research* 43, 2 (2016), 253–276.
- [11] John J Gumperz. 1964. Linguistic and social interaction in two communities. *American anthropologist* 66, 6 (1964), 137–153.
- [12] Jessica A Hoffman and Edward A Miller. 2020. Addressing the consequences of school closure due to COVID-19 on children's physical and mental well-being. *World medical & health policy* 12, 3 (2020), 300–310.
- [13] Lilly C Irani and M Six Silberman. 2013. Turkopticon: Interrupting worker invisibility in amazon mechanical turk. In *Proceedings of the SIGCHI conference on human factors in computing systems*. 611–620.
- [14] Peter Kropotkin. 2012. *Mutual aid: A factor of evolution*. Courier Corporation.
- [15] John M Levine and Richard L Moreland. 1994. Group socialization: Theory and research. *European review of social psychology* 5, 1 (1994), 305–336.
- [16] Mary Loxton, Robert Truskett, Brigitte Scarf, Laura Sindone, George Baldry, and Yinong Zhao. 2020. Consumer behaviour during crises: preliminary research on how coronavirus has manifested consumer panic buying, herd mentality, changing discretionary spending and the role of the media in influencing behaviour. *Journal of Risk and Financial Management* 13, 8 (2020), 166.
- [17] Diane Maloney-Krichmar and Jenny Preece. 2005. A multilevel analysis of sociability, usability, and community dynamics in an online health community. *ACM Transactions on Computer-Human Interaction (TOCHI)* 12, 2 (2005), 201–232.
- [18] Gustavo S Mesch and Guy Beker. 2010. Are norms of disclosure of online and offline personal information associated with the disclosure of personal information online? *Human Communication Research* 36, 4 (2010), 570–592.
- [19] Johanna Meurer, Martin Stein, David Randall, Markus Rohde, and Volker Wulf. 2014. Social dependency and mobile autonomy: supporting older adults' mobility with ridesharing. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. 1923–1932.
- [20] Maria Nicola, Zaid Alsafi, Catrin Sohrabi, Ahmed Kerwan, Ahmed Al-Jabir, Christos Iosifidis, Maliha Agha, and Riaz Agha. 2020. The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International journal of surgery (London, England)* 78 (2020), 185.
- [21] World Health Organization. 2020. *Listings of WHO's response to COVID-19*. <https://www.who.int/news/item/29-06-2020-covidtimeline>
- [22] Alexandra Quinn and Margaret Laws. 2020. Addressing community needs and preparing for the secondary impacts of Covid-19. *Nejm Catalyst Innovations in Care Delivery* (2020).
- [23] Carol Soon and Yi Da Soh. 2014. Engagement@ web 2.0 between the government and citizens in Singapore: dialogic communication on Facebook? *Asian Journal of Communication* 24, 1 (2014), 42–59.
- [24] Isa Rodríguez Soto. 2020. Mutual Aid and Survival as Resistance in Puerto Rico: Faced with an onslaught of disasters, government mismanagement of life-threatening crises, and the injustices of colonialism, Puerto Rican communities have bet on their own survival. Their mutual aid efforts testify to both the power of grassroots organizing and the scale of state neglect. *NACLA Report on the Americas* 52, 3 (2020), 303–308.
- [25] Dean Spade. 2020. *Mutual Aid: Building Solidarity during this Crisis (and the Next)*. Verso Books.
- [26] Kate Starbird and Jeannie Stamberger. 2010. Tweak the tweet: Leveraging microblogging proliferation with a prescriptive syntax to support citizen reporting. In *Proceedings of the 7th International ISCRAM Conference*, Vol. 1. ISCRAM Seattle, WA, 1–5.
- [27] Yi-Chia Wang, Robert Kraut, and John M Levine. 2012. To stay or leave? The relationship of emotional and informational support to commitment in online health support groups. In *Proceedings of the ACM 2012 conference on computer supported cooperative work*. 833–842.
- [28] Worldometer. 2021. *United States Coronavirus Cases*. <https://www.worldometers.info/coronavirus/country/us/>
- [29] Sung-Un Yang, Minjeong Kang, and Heewon Cha. 2015. A study on dialogic communication, trust, and distrust: Testing a scale for measuring organization-public dialogic communication (OPDC). *Journal of Public Relations Research* 27, 2 (2015), 175–192.