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Can digital innovations help reduce suffering? A crowd-based digital innovation framework of compassion venturing

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ARTICLE INFO

Keywords:
Digital
Compassion ventures
Crowd innovation

ABSTRACT

The Coronavirus disease (COVID-19) pandemic has been a devastating crisis affecting the physical, social, and financial well-being of people the world over. Unlike business-as-usual, crises create unique context conditions in which to study digital innovation. Crises can create widespread suffering. Crises can also trigger “compassionate ventures” started by emergent entrepreneurs, who, by being themselves victims of adversity, are driven to start ventures to alleviate people’s suffering. In this essay, we appropriate the literature from management and entrepreneurship on compassionate venturing to suggest a framework for helping to clarify distinctions in the ways in which digital innovation may emerge during crises.

1. Introduction

Unlike business-as-usual, crises create unique conditions in which to study digital innovation. Crises can create widespread suffering. For example, the Covid-19 pandemic has been a crisis affecting the physical, social, and financial well-being of people worldwide. Crises can also trigger compassion venturing—creating and running a new entity (either a new venture in an established organization [de alio] or a new organization [de novo]) in the immediate aftermath of an adverse event (such as an earthquake, refugee crisis, hurricane) and located locally with the victims for the primary purpose of alleviating people’s suffering. There are many concepts learned from the recent research on the antecedents to compassion venturing and the factors that affect how these ventures successfully deliver needed services to local victims. We use these concepts and relationships to guide critical scholarship on how crowd-based digital innovation can respond to the Covid-19 pandemic specifically and adverse events more generally.

Compassion venturing does not refer to funding charity organizations, such as classically accomplished through crowdfunding apps (Zhao et al., 2019) or flying supplies to a location in need. Instead, compassion venturing involves individuals who are “on the ground”, often as victims, with intimate knowledge of both the gaps in these government or NGO responses to victims’ needs and how to navigate local conditions to satisfy those needs (Shepherd & Williams, 2014; Shepherd & Williams, 2019; Williams & Shepherd, 2016a, b, 2021). Those who set up these ventures are on-the-spot emergent entrepreneurs in the sense that they may not have previously considered themselves as entrepreneurs at all, have little or no expertise in starting a new venture, and have no time for planning since the extent of the disaster is always difficult to predict. The only resources they have access to are the resources on-hand.

During crises, such on-the-spot emergent entrepreneurs are essential to the success of a post-crisis response since traditional crisis-response organizations such as the military, NGOs, and government agencies rarely have the necessary localized knowledge of needs

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https://doi.org/10.1016/j.infoandorg.2021.100338
Received 7 August 2020; Received in revised form 25 January 2021; Accepted 8 February 2021
Available online 25 February 2021
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and resources (Majchrzak et al., 2007; Shepherd & Williams, 2014; Malhotra et al., 2017). Understanding the factors that lead victims to organically create these organizations on-the-spot to step in and fill the gaps left by traditional crisis-response organizations is the focus of compassionate venturing research. This article explores four additional antecedents (mobilizing resources, magnifying response, building community, and facilitating learning) of compassion venturing, which we suggest can be facilitated by crowd-based digital innovation. We focus on crowd-based digital innovations because compassion ventures tend to be crowd-rich and resource-poor.

Crowd-based digital innovations refer to using digital technology to engage a range of stakeholders in generating novel solutions to a problem (see reviews by Dahlander, Jeppesen, & Piezunka, 2018; Majchrzak & Malhotra, 2020; Tucci, Afuah, & Viscusi, G. (Eds.), 2018.) Entrepreneurship scholars have largely ignored the role of technology in compassion venturing. Similarly, scholars have not explored how crowd-based digital innovations can be applied to the unique and trying circumstances of an individual local to the crisis using available resources to organically construct an organization that serves victims’ needs. Research on crowdfunding (e.g., Bellemare, Lambert, & Schwienbacher, 2014; Mollick, 2014), for example, does not focus on how digital innovation can support the rapid use of the funds generated, especially when there are few supplies to purchase. Research on the use of crowd-based innovation contests (Boudreau, Lacetera, & Lakhani, 2011; Tucci et al., 2018) focuses on asking the crowd to address problems with clear evaluation criteria, while victim-entrepreneurs may be thrilled by simply alleviating some small degree of victims’ suffering, regardless of how that alleviation is achieved. Thus our theorizing about how crowd-based digital innovation can enable the success of compassion ventures is one of this essay’s contributions.

There is a small stream of research on asking public crowds to offer solutions to grand societal challenges, which is more directly related to compassion ventures. This research (Majchrzak and Malhotra, 2020; Malone et al., 2017; Porter, Tuertscher, & Huysman, 2019) generally finds that digital technology plays a critical role as a vehicle for increasing one’s social network and stimulating cognitive connections that foster co-creation between stakeholders. With so few resources available to victims, using digital technologies to foster co-creation with other victims is one way the current research on crowdsourcing might help compassion venturing. In this essay, we explore additional ways that crowd-based digital innovations may help compassion venturing.

Crowd-based digital innovations are likely to help the crowd-rich conditions of compassion venturing because they can help the entrepreneur manage their crowds more effectively. Any digital innovation that helps individuals define what the crowd can do and what the crowd needs to do at little financial cost with no learning time is most likely helpful in facilitating compassion venturing. Any crowd-based digital innovation that relies on the most minimal bandwidth is more likely to help facilitate compassion venturing since that may be all the available access. Any crowd-based digital innovation that is stand-alone, requiring minimal processing capability, and comes as a fully enabled package with security, data privacy, and configurations already done will likely be most helpful in facilitating compassion venturing. Any crowd-based digital innovation that can be used autonomously by individual crowds and employees as they join and leave the organization, yet aggregated into dashboards for managing the crowd, will likely help facilitate compassion venturing. However, we need research about how to enable the range of antecedent facilitating conditions that increase the probability that a compassion venture will startup quickly and successfully deliver services. In the sections that follow, we develop a framework of how crowd-based digital innovation can support these antecedent facilitating conditions.

2. Crowd-based digital innovation and compassion venturing

The Coronavirus disease (Covid-19) pandemic and the response to slow it down have created extreme, widespread adversity. Governments, first responders, and established care organizations (e.g., hospitals, firefighters, and charity organizations) have worked hard to increase their capacity to alleviate community members’ suffering. But, as is often the case in crisis times, the demand for help exceeds and complicates the supply. From this gap, compassion venturing emerges and continues to emerge as the crisis continues with subsequent adverse events. Understanding the antecedents that foster this emergence will help identify how digital innovation can help.

The framework in Fig. 1 is focused primarily on the literature on compassion venturing. By understanding that literature, the role of digital innovation can be better defined. The compassion venturing literature conceptualizes compassion venturing as a process of at least three stages: (1) Preparedness for adverse events; (2) Compassion venturing activities; and (3) Compassion venturing outcomes. On top of the compassion venturing process, we overlay how the introduction of crowd-based digital innovations would help this process. We propose that crowd-based digital innovations can facilitate the compassion venturing process in each of the three stages. Therefore, we propose that integrating compassion venturing with crowd-based digital innovations can help communities effectively respond to a pandemic and other adverse events. Below, we discuss the potential role of crowd-based digital innovations in each stage in more detail.

2.1. Stage 1: preparing for adverse events

The seeds of a response to an adverse event are planted well before the onset of that adverse event. While many different actors could be prepared to respond to adversity, we focus on the pool of potential actors that could engage in compassion venturing, the community in which these potential entrepreneurial actors are embedded, and identifying ways in which crowd-based digital

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1 Although we present this model in a linear fashion for explanation, we note that the process typically unfolds in a non-linear way.
innovations can help these entrepreneurs throughout the compassion venturing process. The two sets of actors—communities and potential entrepreneurial actors—are linked; local communities provide a climate in which individuals accumulate localized resources, relationships critical for accessing resources, and a motivation to help other community members (Williams & Shepherd, 2016a, 2021).

In the aftermath of the Black Saturday Bushfire disaster in Australia, many local physical resources were destroyed, but what remained were intangible, community-based resources that could be mobilized by compassion venturing activities (Shepherd & Williams, 2014; Williams & Shepherd, 2016b). These intangible resources included: a) local values that bonded members together, driving prosocial motivation; b) local knowledge, especially location-specific information for communication and where to find specific people and resources; c) local relationships for trust in transferring and sharing resources as well as coordinating efforts; and d) “being a local” at ground zero to create weak ties with “outsiders” for needed resources (Shepherd & Williams, 2014; for network ties see Williams & Shepherd, 2018).

Some communities better prepare themselves for adversity than others (Cutter, Ash, & Emrich, 2014). By community, we refer to “collections of actors whose membership in the collective provides social and cultural resources that shape their action” (Marquis, Lounsbury, & Greenwood, 2011, p. xvi). In the case of the Covid-19 pandemic, some community members are more likely to become infected (e.g., healthcare workers, grocery workers, meat packers, police, and so on) and some community members suffer more from the infection (e.g., the elderly, minorities, and individuals with co-morbidities) than other community members. Research has found that communities differ in how they influence the preparedness for an adverse event. Thus, the likelihood that community members will emerge to engage in venturing activities to alleviate suffering within that community will likely differ as well (see Adekola & Clelland, 2020).

Specifically, the research has found that communities with a strong local culture (e.g., identity and bond amongst its members) can activate some of its members to engage in compassion venturing to alleviate suffering in the aftermath of a large-scale adverse event. Even in the face of high adversity, the community still provides its members a sense of belonging, agency beliefs, and thinking that there will be a new, positive future. This (belief in the) strength of the community represents a valuable endowment of resources that compassion ventures can use to reduce feelings of loneliness, helplessness, uncertainty (Shepherd & Williams, 2014), promoting proactive mobilization consistent with compassion venturing to help reduce the suffering of other community members.

There is also evidence that, in having experienced adversity (such as a natural disaster or war), subsequent adversity will have a less negative impact on the community’s members through enhanced collective coping self-efficacy (Benight, Swift, Sanger, Smith, & Zeppelin, 1999). The positive impact of experience does not mean that strong communities can eliminate members’ suffering from adversity. Still, the preliminary evidence suggests that such communities have an endowment of resources that compassion venturing can mobilize to help the community cope.

2.1.1. How digital innovation can help prepare a community for compassion venturing

Nascent entrepreneurs are emergent and situationally-driven and thus cannot be identified in advance. Therefore, we need crowd-based digital innovations to help prepare as many people as possible in the community before the adverse event. Having crowds innovate together in response to an adverse event, exchange and identify resources, restore relationships, and surface motivational drivers increases the likelihood that a few community members will have the self-efficacy to adopt an entrepreneurial role. For
example, entrepreneurs are more likely to emerge if they can inventory resources (knowing who has access to what and who has what special needs) in a non-transparent manner since such inventories are rarely made public for reasons of privacy, modesty, and personal priorities. How can crowd-based digital innovation help in a context where the mere act of making something explicit puts it at risk?

We suggest that crowd-based digital innovation can help in strengthening a community before an adverse event. A newly created online community can encourage members to share their needs, such as medicines, help with aged relatives, and locations that tend to be particularly vulnerable to environmental damage. The online community can as well help to encourage sharing of resources such as extra shelter facilities, generators, or expertise such as mechanical, medical, or food preparation. There is substantial research on digital technologies to support online communities by enhancing online status and reputation (Levina & Arriaga, 2014), to respond to changing contexts by devising filters for dynamic search needs (Majchrzak, Jarvenpaa, & Hollingshead, 2007), and to ensure that the community is used for its intended purpose of building identity and prosocial motivation by and inserting automated moderation (Aaltonen & Lanzara, 2015).

2.2. Stage 2: engaging in compassion venturing activities

Triggered by an adverse event (and the general detection or anticipation of community-members’ suffering), individuals engage in compassion venturing activities immediately in the aftermath of such an event (also referred to as spontaneous venturing [Shepherd & Williams, 2019]). These compassion venturing activities include identifying and pursuing specific opportunities to alleviate suffering and exploit such opportunities by creating ventures and acting in emergent and improvised ways. To identify specific potential opportunities to alleviate suffering, an individual’s embeddedness in their immediate community helps them to quickly assess the local damage and needs (Shepherd & Williams, 2014; Williams & Shepherd, 2016a, 2021). These assessments may need to be inferred rather than known, depending on the extent to which the immediate needs are consonant with adjacent communities’ needs.

Having identified a specific opportunity to help, these individuals quickly proceed to create ventures (corporate or independent) to exploit these opportunities in the hope of alleviating others’ suffering (Shepherd & Williams, 2014; Williams & Shepherd, 2016a). Creating a venture may be done without legal sanctions given the crisis of time; in this case, the venture is simply a small collective of volunteers who find personal value in helping the entrepreneur deliver the products or services. However, at some point, the venture may run out of supplies or funds and then have to become sufficiently legitimate to apply for funds to continue servicing those in need (Williams & Shepherd, 2018, 2021).

To deliver the products and services requires managing substantial uncertainty that will shroud the entire venturing process. Research on compassion venturing has shown that uncertainty derives from how to triage those suffering because of the number of those in need, the difficulty of reaching victims, resources that were once available that are no longer available (because the adverse event destroyed them or others have accessed them), and disrupted networks because people are uncontactable, otherwise indisposed, or dead (Williams & Shepherd, 2021). Moreover, this uncertainty may change on a minute-to-minute basis as spreading effects unfurl, other entrepreneurs and first responders come to help, and the community gains new information. This uncertainty creates the need for these new entrepreneurs to engage in emergent, improvised actions to adapt to changing circumstances (Shepherd & Williams, 2014). For example, in Haiti, the supply chains were broken, and thus basic goods needed to be delivered by mule and hand carts, which had been ignored.

2.2.1. Crowd-based digital innovation engaging in compassion venturing activities

Crowd-based digital innovations can play a critical role in helping entrepreneurs’ start-up ventures (Belleflamme et al., 2014; Mollick, 2014). A crowd-based digital innovation could help the budding entrepreneur identify an opportunity to alleviate suffering by providing a map indicating all the areas flattened by a tornado, the hot spots of the SARS-CoV-2 coronavirus, or overlays of injury and hospital availability. While satellite images for creating maps are easily accessible after an event, more specific information such as hospital availability, injury/infection rates, or supply needs can only be identified if there are simple, quick, and easy ways to generate and share this information. Crowd-based digital innovations can also rapidly compile and keep updated information from various sources. For example, the Wiki created in the immediate aftermath of Hurricane Katrina’s damage to New Orleans contained data feeds from data sources as diverse as pet shelters, nursing homes, fire departments, boat owners, and relocation centers. The Google MyMap created during the major fires in San Diego county contained overlays of feeds from shelters, government evacuation orders, satellite images of the fire, fire department activity, and available horse sheltering facilities.

Crowd-based digital innovations are needed to help individuals to identify, mobilize, and scale up distributed resources. For example, innovators could design knowledge management systems similar to OfferUp that display resources available for others’ use, displays a wish list of resources compassion ventures need to alleviate others’ suffering, and generate algorithms that match victims’ needs with resource providers. The budding entrepreneur could also monitor reports about the community and adjacent communities to identify the greatest need.

Crowd-based digital innovation can also help with dispersing supplies. Logistics needs can be matched to crowds with logistics capabilities in the needed locations, while crowd-based digital innovation can help keep track of who has received which supplies. Blockchain has been used in refugee camps to facilitate the exchange of resources (Zambrano, Young, & Verhulst, 2018), while crowd-based citizen development platforms have quickly created and implemented a SARS-CoV-2 coronavirus virus tracking system for New York City.

Crowd-based digital innovations are needed as well to help quickly create the ventures. Digital innovations could lead to automated go-fund-me sites, smartphone devices that take and upload images of victims’ needs posted on social media to attract potential investors, matchmaking services that link the needs of compassion ventures and volunteers willing to help, and questionnaires...
embedded with software code to allow entrepreneurs to set up legal entities within minutes.

Finally, crowd-based digital innovations can help compassion ventures act in emergent and improvised ways. Maps of hazards on the road contributed through crowdsourcing can help these entrepreneurs plan alternative service delivery routes. Providing temporary internet hot spots can help compassion ventures stay in communication with those who are suffering. Temporary IoT sensors can be quickly placed at any location, allowing compassion ventures to measure if a truck has sufficient room to make it through a pass or the river’s height prevents fording to reach a house in need.

2.3. **Stage 3: achieving compassion venturing outcomes**

Individuals engage in compassion venturing under the belief that they can alleviate community members’ suffering (Williams & Shepherd, 2016a). With many different entrepreneurial attempts to alleviate suffering within a community, there will be differences in effectiveness across these venturing efforts. For compassion to reduce suffering, it needs to (1) speedily deliver a (2) customized response on a (3) broad scale and (4) scope to victims (Dutton, Worline, Frost & Lilius, 2006; Shepherd & Williams, 2014). The more that compassion venturing delivers on these outcomes, the more successful it is at reducing community members’ suffering from the adverse event.

2.3.1. **Crowd-based digital innovations magnifying compassion venturing outcomes**

Research on online crowd-enabled citizen science (Curtis, 2015), open innovation (Altman, Nagle, & Tushman, 2014; Lifshitz-Assaf, 2018; Tushman et al) and open source software development (Shah, 2006) indicate that crowds will help a cause when those activities align with their personal interests, and when they can see the value of their actions. Customizing services to victims at the scale and scope needed requires crowd-based digital innovations that are human and algorithm-driven. Such algorithms surface patterns in victims’ needs that compassion venturing can use in their on-the-spot priority decisions, critical to saving lives under highly dynamic situations. Automated peer-to-peer models of crowd-based digital innovation can help entrepreneurs focus their energies on victim suffering in which peers with requisite supplies and expertise are unavailable. Wikis documenting decisions, needs, and services delivered can help garner trust in the entrepreneur’s intentions and actions. Crowds documenting their experiences in needling and receiving services can be viewed by outsiders not associated with the victim to help identify pockets of needs and develop open-source algorithms to mine in realtime victims’ needs.

2.4. **Compassion venturing cycles (feedback effects)**

Outcomes of compassion venturing can influence the preparedness (of individuals and communities) for subsequent adverse events. For example, in effectively reducing the suffering of community members to an adverse event, individuals can learn from their (and others’) experience, which builds localized resources (e.g., knowing who to rely on when adversity hits), expands networks (e.g., having developed new relationships through compassion venturing and building one’s reputation as a valuable helper), and strengthens prosocial motivation (e.g., after having experienced first-hand [or witnessed through others’ actions] the benefits of compassion venturing). The community also can learn from the compassion venturing outcomes in response to an adverse event in preparing for a subsequent adverse event. Recognizing the role that community identity and the members’ sense of community had in providing resources for compassion venturing in successfully reducing suffering likely enhances members’ identification with the community and strengthens the bond amongst its members. Such enhanced identification and strengthened bonds better prepare the community (with resources) to address subsequent adverse events (Aldrich & Meyer, 2015).

Furthermore, the more successfully a community copes with an adverse event (via the compassion venturing of its community members), the greater the collective belief that it will successfully cope with subsequent adverse events. Such collective coping efficacy leads to better coping outcomes after subsequent adverse events (Benight et al., 1999).

2.4.1. **Crowd-based digital innovations facilitating learning from outcomes**

Compassion ventures can use crowd-based hackathons to find ways to automate venturing activities (Temiz, 2021) and crowd-supported entrepreneurship expertise to find useful ways to present the venture to potential investors (DiPietro, Majchrzak & Prncipe, 2017). Compassion ventures can use crowd-completed best-practices to build a knowledge base of effective actions in alleviating suffering and inform compassion venturing in preparation for responding to subsequent adverse events. Communities can use crowd-based innovation challenges to identify new ideas for problems that compassion ventures could not solve for the last adverse event. Finally, recommender engines can distribute these hacks, lessons, best practices, and innovative ideas with matching algorithms. Social networks and Stack-Exchange-like Q&A forums and online communities can be encouraged by sponsorship and digital platforms to discuss these new practices in preparation for the next adverse event. Creating online communities will also help with the wide distribution of best practices for compassion venturing to alleviate local suffering in the aftermath of an adverse event. Most importantly, as with all online communities, various roles will emerge to facilitate providing value to the community members, which will, in turn, empower individuals to take on entrepreneurial roles when the next adverse event occurs.
3. Conclusion

3.1. Implications for theory

This essay impacts two theoretical streams of research—compassion venturing and crowd-based digital innovation. For compassion venturing theory, the inclusion of digital innovation can enhance the levers to deliver a rapid, customized response on a broad scale and scope to a crisis site to alleviate suffering. For research on crowd-based digital innovations, this essay offers a call to consider how this research can apply to the ill-structured, wicked problems often created in the aftermath of an adverse event, i.e., responses that cannot rely on existing routines that fit with well-structured problems (Majchrzak, Griffith, Reez, & Alexy, 2018).

3.2. Implications for practice and policy

Agencies responsible for responding to adverse events should not focus exclusively on how emergency-response organizations coordinate with each other but focus some of their attention (and resources) on helping victims (and other locals to the adverse event) create new ventures (corporate or independent) to help the victims directly. Agencies should also consider using technologies to prepare communities in advance for adverse events in ways that will promote the likelihood of compassion venturing and the effectiveness of these compassion venturing efforts to alleviate suffering.

3.3. Implications for future research on digital innovation

This essay on the intersection of compassion venturing research and the opportunities provided by crowd-based digital innovations suggest future research for both disciplines. How can a suffering crowd become convinced that transparently sharing resources will help them? How can a crowd come to trust a victim-entrepreneur to support their needs? How can a mobile infrastructure be created to provide hot spots as needed unpredictably and dynamically when the basic infrastructure is compromised? How can governments support the emergence of compassion venturing entrepreneurs? How do we avoid over-reliance on the technology and have work-arounds when it breaks down in an environmental disaster?

In sum, by describing the research on compassion venturing and identifying where and how crowd-based digital innovations can help, we hope to encourage those researchers on the cusp between information and organizational systems to delve into this domain of research. By making salient a pre-existing theoretical structure and line of research in compassion venturing, the digital innovation researcher has tools to rapidly gain a theoretical and empirical foothold into managing societal adversities and crises. Finally, by devoting this essay to compassion, we hope to empower IS researchers to bring their prosocial motivational values into their research and the outcomes they study. Unfortunately for us all, adverse events and crises seem likely to only increase in prevalence and magnitude. Researching how digital innovations can help and the organizations needed to cope with this adversity is more important now than ever before.

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