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Rise from ashes: A dynamic framework of organizational learning and resilience in disaster response

Lucrezia Nava

Cambridge Judge Business School, University of Cambridge, Cambridge, UK

Correspondence
Lucrezia Nava, Cambridge Judge Business School, University of Cambridge, Trumpington Street, Cambridge, CB2 1AG, UK.
Email: l.nava@jbs.cam.ac.uk.

Abstract

Natural disasters are increasingly impacting the lives of organizations. The COVID-19 pandemic has brought attention to how organizations improve their resilience and learn how to emerge stronger after such events. While there has been little integration between the literature on organizational learning and resilience, this article draws on both streams of literature to develop a conceptual framework that distinguishes three different organizational processes emerging in the aftermath of a disaster (resilience, learning from disasters, and learning through disasters). Each response is characterized by a specific outcome, mechanism, and temporal orientation. Moreover, the proposed framework discusses the dynamic relationships between these responses. While learning from disasters and resilience combine in a cyclical dynamic that leads to an upgrade in existing organizational capabilities, learning through disasters involves a transformative dynamic that leads to expanding organizational capabilities in new domains. This article is of value to both practitioners and scholars. For managers, it derives practical implications for improving the organization's capacity for transformation in the aftermath of a disaster such as

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COVID-19. For scholars, it contributes to the debate about the long-term interrelation between different organizational response to disasters and sheds light on the mechanisms of organizational renewal in the aftermath of a disaster.

KEYWORDS

COVID-19., natural disasters, organizational change, organizational learning, organizational resilience

1 | INTRODUCTION

> *Her fetters burst, and just releas'd from prison,A virgin phoenix from her ashes risen.*
> Lord Byron, in English Bards and Scotch Reviewers (1809)

Recent decades have seen a rapid increase in disasters (Alexander, 2006), including pandemic viruses, earthquakes, hurricanes, frequent flooding, and extreme droughts. The earth is becoming an increasingly less hospitable planet for humans, putting a strain on society and threatening our livelihoods. Each year, natural disasters kill about 90 thousand people and affect 160 million people by destroying their physical, biological, and social environments (World Health Organization, 2020), in addition to pandemics such as COVID-19. Organizations face profound crises due to unexpected changes in their natural environment (Guion et al., 2007; Sahebjamnia et al., 2015). Learning to respond to these disasters and developing resilience are no longer an option but an imperative for survival. In the United States alone, 2 months after the outbreak of the COVID-19 pandemic, 2% of businesses had already closed their doors forever (Bartik et al., 2020). Some of the most robust companies, however, are not only able to recover and return to the predisaster status quo but also increase their ability to deal with future similar threats (Rerup, 2009) and extend organizational capabilities (Christianson et al., 2009). It follows that responding to disasters is not simply a matter of survival in the face of disruption but can also generate a broader set of desirable outcomes for the affected organizations.

Two streams of literature have studied organizational response to disasters. The first stream is the resilience literature, which studies organizational capacity to maintain their functioning despite adversity (Williams et al., 2017; Williams & Shepherd, 2016). The second stream is the literature on learning from rare events, which examines how some disaster-affected organizations develop new skills to deal with similar threats in the future (Beunza & Stark, 2003; Carley & Harrald, 1997; Kendra & Wachtendorf, 2003; Madsen, 2009; Oetzel & Oh, 2013; Scholten et al., 2019). Surprisingly given the growing interest in understanding organizational response to disasters, these two streams have developed on parallel tracks, as resilience discusses how to avoid experiencing setbacks during adversity, while learning discusses how experiencing setbacks can lead to positive consequences. When considering a single instance or case study, as is often the case in the literature, the empirical contexts for these two streams are different: While the literature on resilience focuses on organizational contexts that are capable of avoiding adversity, the literature on learning from rare events focuses on contexts that have experienced adversity and developed new capabilities as a result. However, over time, these two responses

are likely to relate. Experiencing adversity might help develop resilience for future threats, but it also seems plausible that increased resilience reduces learning opportunities. Although not considered in the existing literature which has instead focused on either type of response in isolation (Williams et al., 2017), understanding the dynamic relationship between these responses allows for a more comprehensive view of organizational response to disasters, with implications for the organizations and communities affected by disasters like the COVID-19 pandemic.

Therefore, the research question guiding this theoretical study is: *How do organizational resilience and learning following a disaster relate dynamically over time?* To answer this question, I analyze the distinct mechanisms, temporal orientation, and outcomes of resilience and learning in the aftermath of a disaster. Learning responses are further distinguished into learning *from* disasters (i.e., improving the capacity to respond to similar events in the future) and learning *through* disasters (i.e., developing capabilities that enable the organization to renew its mission and identity). While the first type of learning has been extensively discussed in the literature (Beunza & Stark, 2003; Carley & Harrald, 1997; Kendra & Wachtendorf, 2003; Madsen, 2009; Oetzel & Oh, 2013; Scholten et al., 2019), the second type is emerging and based primarily on anecdotal evidence (Lampel et al., 2009). For example, Christianson et al. (2009) describe the experience of the Baltimore & Ohio Railroad Museum Roundhouse, which, following the collapse of the building's roof due to a natural event, was able to renovate and reopen after a few months with a greater capacity to attract visitors and an organizational culture more open to dialogue and exploration. I argue that these three processes are characterized by different time horizons, mechanisms, and outcomes for the organization. Next, I develop a conceptual framework that relates these three processes. I argue that resilience and learning from disasters relate by creating a *cyclical dynamic*, leading to a continuous capability update within the existing domain. Learning through disasters, on the other hand, allows for a *transformative dynamic* able to expand the domain of capabilities developed and deployed by the organization. The consequences of these dynamics are illustrated through the case of COVID-19 responses, with important implications for organizations and communities struggling with this threat.

This study contributes to the literature on organizational response to disasters in at least three ways. First, I combine the literature on resilience and learning to show how these processes are dynamically related over time. In particular, I discuss how these processes, traditionally studied separately, are interrelated in cycles by adopting a dynamic, long-term perspective on organizational life. In contrast, most of the existing literature focuses on single events, without shedding light on the long-term relationship between these different processes. Second, the proposed framework emphasizes a potential downside of resilience, namely the reduction of future organizational learning opportunities that emerge from being hit hard by adversities. In this way, I answer the call to consider the potential dark sides of resilience (Williams et al., 2017). Finally, I analyze the mechanisms, temporal orientation, and outcomes of learning through disasters, which is scarcely theorized in the literature despite accumulating empirical evidence supporting this process (Lampel et al., 2009). The learning literature focuses on increased future preparedness to face disasters as the primary outcome of learning, ignoring other more radical changes experienced by some organizations surviving a disaster. Furthermore, I offer practical implications to increase the effectiveness of organizational learning processes after a disaster, especially in light of the current COVID-19 pandemic, ultimately helping disaster-affected organizations to transform for the better following such events and renew themselves with improved vision and capabilities, like a phoenix from the ashes.

In the next section, I present the main insights from the literature on resilience and on learning from rare events and discuss the mechanisms, outcomes, and time horizon relevant to

each process. In doing so, I lay the theoretical foundation for the propositions and contributions of the study. Following, I propose a framework that represents the dynamic and long-term relationships among these processes and develop propositions about the mechanisms and consequences of these dynamics. Then, I discuss how these propositions apply in the context of responding to COVID-19, concluding with a set of managerial guidelines for increasing positive and lasting organizational transformation in response to this threat. I conclude with a discussion of the theoretical contributions of this study along with directions for future research.

2 | THEORETICAL BACKGROUND

2.1 | Resilience: Maintain reliable functioning despite adversity

The resilience literature focuses on the ability to cope with disasters as they occur during an emergency by minimizing the damages and quickly recover to the previous status quo. Resilience is defined as "the process by which an actor builds and uses its capability endowments to interact with the environment in a way that positively adjusts and maintains functioning before, during, and following adversity" (Williams et al., 2017, p. 742). The *outcome* of this process is therefore the capacity to maintain reliable functioning despite facing adverse events by deploying existing capabilities of the organization, rather than the development of new capabilities. While resilience can emerge in response to many types of adversities, including organizational crises or economic crises, it is a central aspect of disaster response. For instance, the trading room at the New York World Trade Center was able to resume operations in a new location in New Jersey only 6 days after the 9/11 terror attack, despite the technology platform through which trading was taking place was destroyed (Beunza & Stark, 2003). Similarly, the Emergency Operations Center of New York, also located in the World Trade Center, entirely restored operations to another location only 96 h after the building collapsed (Kendra & Wachtendorf, 2003). Although the physical infrastructure of the Emergency Operation Center was destroyed, including documentation and equipment, the members of the organization evacuated from the building restored the premises to a different location, continuing to provide emergency management assistance to the city of New York battered by an unprecedented terror attack. Although these organizations could probably not foresee a terror attack with these devastating effects, the high degree of improvisation, flexibility, and commitment to the goal of restarting operations as quickly as possible allowed for an exceptionally rapid recovery to the previous status quo.

The *mechanism* through which resilience is achieved is the activation, combination, and recombination of latent organizational resources and capabilities when disruptions emerge (Vogus & Sutcliffe, 2007). These capabilities include flexibility in sourcing and manufacturing, collaboration, financial strength, or product stewardship (Fiksel et al., 2015). The more malleable and convertible the combination of organizational resources is, the greater is the chance that the organization can cope with and adapt to disasters (Vogus & Sutcliffe, 2007). Resilience is, therefore, not a capability that develops during disaster response but a preexisting feature of the organizational structure that manifests itself in challenging times. For example, in the case of the World Trade Center in New York mentioned above, rapid recovery was possible because of strong personal ties and heterarchical structures that fostered self-organization and personal initiative, allowing all organizational members involved to make quick decisions in a decentralized but coordinated manner (Beunza & Stark, 2003). Because rapid implementation

is required, the degree of self-reflection and analysis demanded for rapid recovery is minimized, as actions are often required before the problem is fully understood (Weick, 1988) and previous contingency plans are rarely followed (Carley & Harrald, 1997).

As a centralized strategy takes time to formulate, the immediate response to a disaster is often spontaneous and organizational members at all levels work to re-establish a context in which work can be organized, relying on a set of heuristics and intuitions rather than following precise instructions (Carr, 1932). Thus, the *temporal orientation* of resilience is present, as resilience is about the immediate organizational members' response to disruption aimed at re-establishing operations as quickly as possible. By its nature, this type of response is also short-lived, as it ends when the organization has fully recovered from a disaster. However, the ability to recombine resources flexibly remains within the organization and can be useful in overcoming future threats.

2.2 | Learning and disasters: Develop a new set of capabilities

Organizational learning is defined as the process of "encoding inferences from history into routines that guide behaviors" (Levitt & March, 1988, p. 320). Although there is potential for learning in every activity that organizational members carry out daily, disasters have often been recognized as a powerful catalyst for organizational learning (Schein, 1972). The experience of a disastrous event, such as a natural disaster or terror attack, deprives the organization of its certainties and leads it to reassess its capabilities and its limits (Christianson et al., 2009). If up until the moment of disruption a certain type of response was automatically following a given stimulus in the organization, a disaster can break the stimulus–response link, revealing the inadequacy of the responses in place and forcing the organization to critically reconsider and restructure them (Barnett & Pratt, 2000). Thus, disasters are catalysts of organizational awareness. They bring light to the submerged, taken-for-granted aspects of organizational life and disconfirm existing heuristics and rules of thumb by revealing organizational vulnerability to external threats and the lack of organizational capacity to face them (Beck & Plowman, 2009; Rerup, 2005, 2009). This process facilitates error discovery and correction by allowing organizational members to realize interrelationships between events that had previously been left out of the spotlight (Weick et al., 1999).

The outcome of learning is the strengthening of existing capabilities or the development of a new set of capabilities. However, there are several forms through which organizational learning can be manifested in the aftermath of a disaster (Lampel et al., 2009; Smith & Elliott, 2007). The set of capabilities developed and the process by which these capabilities are developed are distinct for different types of learning. In this study, I build on the work of Lampel et al. (2009) and Smith and Elliott (2007) to distinguish two main types of learning: learning from disasters and learning through disasters. Learning *from* disasters refers to the process through which an organization evaluates its current responses to disasters and develops new routines to enhance its ability to face similar threats in the future after experiencing, directly or indirectly, a disaster (Smith & Elliott, 2007). Most of the literature on learning following a disaster focuses on this type of learning. However, empirical evidence shows that increased preparedness for future disruptions is not the only possible outcome of learning in this context. In fact, under certain conditions, some organizations achieve a more profound renewal following a disaster (Christianson et al., 2009; Salvato et al., 2020). Learning *through* disasters occurs when the organization deeply redefines its core values and identity following a disaster, ultimately expanding

its capabilities beyond the face of similar threats. When such learning occurs, the organization can re-organize itself in a more thorough and environmentally fitting way than before the disruption (Lampel et al., 2009) and may become better able to explore new opportunities (Alexander et al., 2020; Salvato et al., 2020). Next, I discuss the different outcomes, mechanisms, and temporal orientation of these two types of learning.

2.2.1 | Learning from disasters: Better preparedness to face future disruptions

After experiencing a disaster, the perception of the likelihood that a similar event may occur again in the future increases (Hoffman & Ocasio, 2001). Moreover, organizations that are heavily impacted by a disaster are exposed to the inadequacy of existing responses (Viscusi & Zeckhauser, 2006). This increased vulnerability awareness prompts organizations to adjust their routines and strengthen their capabilities to be better prepared for similar threats in the future (Barnett & Pratt, 2000). The main *outcome* of this process is therefore the development of new routines to reduce the negative consequences of experiencing future disruptions (Carley & Harrald, 1997; Madsen, 2009; Oetzel & Oh, 2013; Rerup, 2009; Scholten et al., 2019). For example, after experiencing Hurricane Katrina in 2005, Cisco improved its supply chain capabilities and resilience to the point that 6 years later it was barely affected by the Great East Japan Earthquake (Scholten et al., 2019). This process explains why companies that have survived natural disasters are more likely to invest in countries where such disasters are more frequent, suggesting a better, at least perceived, ability to cope with them (Oetzel & Oh, 2013). Like resilience, this type of learning is not exclusive to disaster response: Any rare event that negatively affects the organization, such as an organizational crisis, can trigger this process. For example, after experiencing a critical situation, Novo Nordisk became more sensitive to environmental threats and improved its ability to detect weak signals in the environment and prevent the recurrence of crises (Rerup, 2009).

This type of learning is likely to emerge when organizations undertake a process of interpreting their recent history to create new routines that can better guide their future behavior (Levitt & March, 1988). Therefore, the main *mechanism* of this type of learning is a cognitive process through which the organization critically discusses and reflects on the inadequacy of existing responses and understands what went wrong and what can be improved if a similar circumstance reoccurs in the future (Beck & Plowman, 2009; Rerup, 2005). According to Rerup (2009), Novo Nordisk's increased ability to respond promptly to future crises was based on the enactment of sensemaking through openness to discussion, criticism, and reflection. Sensemaking is the process through which people try to understand events that are novel, ambiguous, confusing, or violate expectations (Maitlis & Christianson, 2014). Through this process, Novo Nordisk's employees were able to spot the inadequacy of the measures employed to deal with the crisis and to replace them with a more effective set of routines to respond to future disruptions (Rerup, 2009). In such circumstances, the organizational members' cognitive effort is redirected to interpret the cues from an ambiguous and uncertain environment, finding in plausible interpretations a guide for continuous action (Maitlis & Christianson, 2014; Maitlis & Sonenshein, 2010). The quality and outcome of this process determine whether organizational members will learn and innovate to overcome adverse situations in the future or they will force surprising events into existing frames without upgrading the existing capabilities of the organization (Maitlis & Christianson, 2014; Weick, 1988). Interestingly, learning from

disasters does not necessarily require direct experience with the dramatic consequences of a disaster. Learning from disasters can also occur through the vicarious experience of similar organizations (Madsen, 2009), especially when the organizations directly affected by the disaster have similar processes or are market leaders (Hora & Klassen, 2013). Even when the organization is not directly affected, the possibility that such an event could affect the organization in the future is perceived as more likely, prompting organizations to reflect on their own responses and prepare for the future.

The *temporal orientation* of this type of learning is the past, as organizations reflect on the historical event to upgrade their capabilities and routines. This process takes longer than the immediate response to the disaster (i.e., resilience) as it requires the strengthening of existing capabilities and the design of new routines for the future. However, learning from disasters is often reported to be superficial and to quickly diminish over time as the organizational memory of the experience becomes labile (Madsen, 2009; Smith & Elliott, 2007; Starbuck, 2009). The permanence of this learning, however, depends on the quality and depth of the cognitive process and evaluation of the organizational routines described above. For instance, Choularton (2001) shows that, in the aircraft as well as in the oil industry, the mere occurrence of disasters was not sufficient to foster the prevention of such events by other companies in the industry in the long term. In both cases, only a deep analysis of the root causes of the accident led to a better preparedness persisting after years.

2.2.2 | Learning through disasters: Better responsiveness to the environment

The second type of learning, learning through disasters, has been surprisingly less discussed in the existing literature (Lampel et al., 2009). The *outcome* of this type of learning is a renewed organizational vision and a greater ability to respond to opportunities and threats in the environment. Unlike learning from disasters, the outcome of this type of learning is not simply the strengthening of existing capabilities but the development of capabilities in a new domain. In other words, the destruction caused by the disaster is an opportunity not simply to rebuild but to build back a new and better organization, not just in terms of better capacity to face adversity. Although this phenomenon has been little explored and theorizing is still scarce, anecdotal evidence of this type of learning is emerging. The example of the Baltimore & Ohio Railroad Museum Roundhouse mentioned earlier illustrates this outcome (Christianson et al., 2009). A second example of such learning comes from the business communities in the United States studied by Dinger et al. (2020). Although the authors considered different disasters in different regions of the United States, all contexts were characterized by a felt obligation of affected organizations to help the community following the natural disaster and a consequent strengthening of the social ties between organizations and the community. Some affected organizations, moved by noneconomic motivations, transformed themselves by renewing their identity and improved their ability to interact with the community. The disaster represented, for these companies, an opportunity for strategic improvement and identity renewal, resulting in a greater status and higher customer attractiveness relative to unaffected organizations. Similarly, Salvato et al. (2020) describe the case of Italian family-owned businesses that were able to transform themselves and create new business opportunities following the 2009 Central Italy earthquake by leveraging an enhanced internal and external social capital developed in the aftermath of the disaster that allowed these firms to strengthen their relationship with the community.

The *mechanism* through which this type of learning occurs differs from learning from disasters as it involves not only a cognitive process (the analysis and adjustment of organizational routines to cope with adversity) but also an emotional one. Properly managing the negative emotions that affect organizational members in the aftermath of a disaster can lead to an adjustment of values and identity, making the organization more compatible with the newly gained worldviews emerging after the disaster (Argote & Miron-Spektor, 2011; Barnett & Pratt, 2000; Christianson et al., 2009; Smith & Elliott, 2007; Turner, 1976; Weick et al., 1999). In the aftermath of a disaster, the dominant materialistic worldview gives way to a new altruistic worldview in which human relationships and a sense of belonging to society become central to making existence meaningful, thus prompting individuals within and outside organizations to reinforce altruistic values and beliefs (Cohn et al., 2004; Frazier et al., 2013; Oishi et al., 2017; Uchida et al., 2014). When organizational members share and discuss the negative emotions that spur from a disaster and the related search for meaning (Maitlis & Christianson, 2014; Maitlis & Sonenshein, 2010), they are prompted to engage in internal discussions about what should the organization's mission be in the postdisaster era. Following this process, organizational values are likely to be adjusted to become more sensitive and responsive to emerging societal needs (Hemingway & Maclagan, 2004; Lampel et al., 2009). For example, in the case of the Baltimore & Ohio Railroad Museum, the negative emotions following the disaster became an opportunity to reflect on the weaknesses and unrealized potential of the organization and stimulated the ambition of organizational members to develop a new vision and a new domain of capabilities. The change in worldviews forced the organization to question itself, reevaluate who is it and what can it do, and what its role and positioning within the environment is (Christianson et al., 2009).

As this example shows, learning through disasters includes and extends learning from disasters. Learning from disasters is based on mostly cognitive and rational aspects whereby, following a failure in organizational response to a disaster, the weaknesses of existing disruption responses are analyzed and improved. Learning through disasters includes these processes, but change occurs at a deeper level, driven by emotional and not just cognitive processes. Thus, the organization does not merely change its response to adversity; it profoundly changes its values, mission, and identity and develops a new set of capabilities to better meet the emerging needs of the disaster-affected population. While resilience and learning from disasters are typical of the response not only to disasters but also to other adverse phenomena that affect the organization, such as business or economic crises, this third type of response is typical of disasters. It requires an emotional shock that affects the organization and society and leads the organization to reevaluate its role and its capacity to support the community. This explains why, while learning from disasters can occur through vicarious experiences of similar companies as far as a thoughtful reflection about others' experiences takes place (Madsen, 2009), learning through disasters requires direct experience of the consequences of trauma and subsequent emotional arousal. When this process occurs, organizations develop higher sensitivity toward their environment and the needs of the society and advance their ability to identify and explore environmental threats and opportunities (Rerup, 2009).

The *temporal orientation* of this type of learning is the future. The organization transforms and changes its identity and mission to be better suited to the environment of the postdisaster era. Moreover, while the effects of learning from disasters are often superficial and temporarily limited (Madsen, 2009; Smith & Elliott, 2007; Starbuck, 2009), anecdotal evidence shows how the effects of learning through disasters are longer-term than the postdisaster recovery (Boettke et al., 2007). Learning through disasters allows the organization to undergo a deeper change in

its identity and values that is likely to be persistent over time. Therefore, while this type of learning is less likely to happen than learning from disasters as it requires an additional emotional process to be enabled, it is likely to have a longer-term orientation.

Table 1 represents the distinguished outcomes, mechanisms, and temporal orientation of these three processes emerging in the aftermath of a disaster. The context of the COVID-19 pandemic helps illustrate these processes. A restaurant facing long lockdown periods may minimize losses, for example, by establishing or strengthening take-away or delivery service, demonstrating resilience. If hit hard, the restaurant may instead begin to reflect on what barriers led to these losses and prepare for new waves of the pandemic by, for instance, hiring employees with more flexible contracts or strengthening its positioning on social networks to maintain a virtual relationship with customers. These strategies are examples of learning from disasters. Finally, some restaurants may think more deeply about how to address the needs of the pandemic-affected society. The isolation and frustration of employees and owners can, through the management of these negative emotions, lead to the transformation of the restaurant into a community hub. Potential outcomes of learning through disasters are all those through which the organization transforms its identity and is better able to meet the needs of the disaster-affected community, such as the organization of outdoor events open to neighborhood residents to reduce isolation and create relationships, the creation of services such as digital support to help the most fragile individuals, or the transformation of the restaurant into a place to work remotely. In the next section, I describe how these three processes relate, using examples from the ongoing COVID-19 crisis, and develop a dynamic framework with testable propositions that can guide organizational action.

TABLE 1 Characteristics of resilience, learning from, and learning through disasters

Type of learning	Definition	Outcome	Temporal perspective	Persistence in time	Mechanism
Resilience	Positively adjusts and maintains functioning prior to, during, and following adversity	Resilience	Present	Short-run	Flexible recombination of existing capabilities (limited mindfulness)
Learning from disaster	Learning to increase preparedness and ability to face similar threats in the future	Preparedness for future threats	Past	Medium-run (based on the extent of sensemaking)	Cognitive process
Learning through disaster	Learning that occurs when the organization deeply redefines its core values and identity following a disaster	Better responsiveness to environmental forces	Future	Long-run	Cognitive and emotional processes

3 | A DYNAMIC FRAMEWORK OF ORGANIZATIONAL DISASTER RESPONSE

Building on the outcomes, mechanisms, and temporal orientation of the above-mentioned disaster responses, this section develops a dynamic framework that shows how these processes are not independent over the lifespan of the organization. The proposed framework illustrates how the interrelation between these processes creates two types of dynamics. The first dynamic is cyclical, whereby learning from a past crisis increases resilience. In the case of COVID-19, for example, organizations that have faced disasters before were less affected due to increased preparedness to face disruptions (Solomon & Forbes, 2020). However, a positive (resilient) response to COVID-19 that allows for reliable functioning despite the crisis reduces the chances of learning from the disaster, not allowing for the strengthening of capabilities to meet future challenges. The second dynamic, on the other hand, is transformative, and it explains why some companies highly affected by COVID-19 have been able to learn through the disaster and change their identity and value propositions to meet emerging social needs and developing new capabilities (Kuckertz et al., 2020).

Figure 1 represents the proposed framework.The starting point of the framework is the immediate disaster response. During COVID-19, some companies experienced fewer losses than peers and were able to cope with adversity positively, demonstrating resilience. These companies generally relied on slack resources to invest during the pandemic (Kuckertz et al., 2020) and were able to attract more investment despite the crisis, which allowed them to continue operations without disruption or threat to their survival (Cheema-Fox et al., 2020). In many cases, the increased preparedness and ability to recombine flexible responses occurred because of past experience with disruptions from which the organization learned. For example, employees at H-E-B supermarkets in Texas analyzed their supply chain to determine what might have worked and what might have not worked in sourcing from Asian countries affected

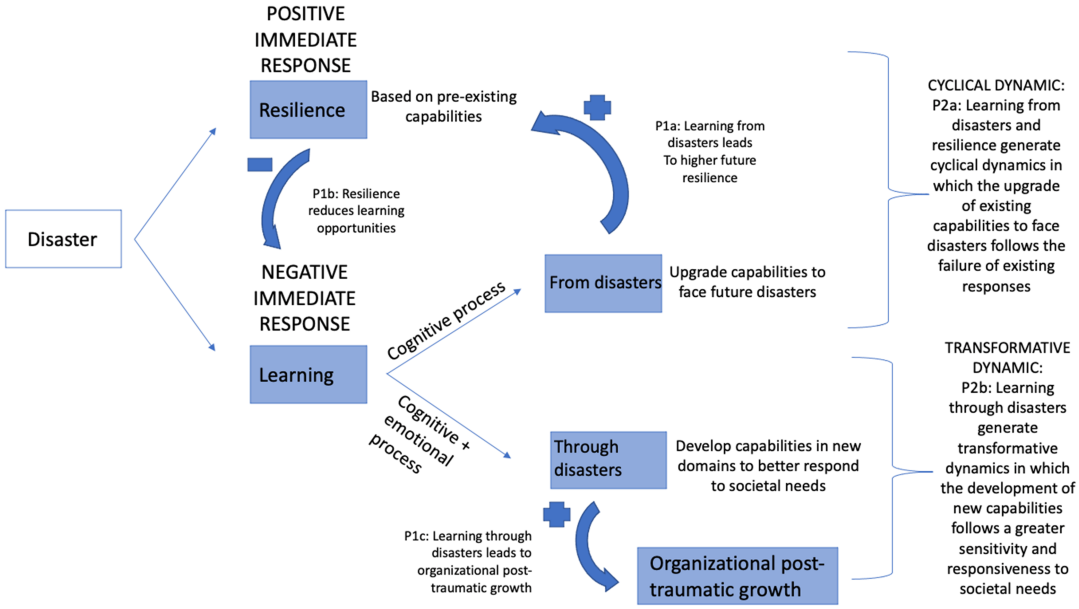

FIGURE 1 A dynamic framework of organizational disaster response [Color figure can be viewed at wileyonlinelibrary.com]

by the pandemic as early as January 2020, ensuring that consumers maintained access to products despite the challenges of COVID-19. This capability is explained by Solomon and Forbes (2020) by the fact that H-E-B had been developing and refining their emergency preparedness plans for over 10 years following the H1N1 swine flu in 2009 which provided them with a learning opportunity to develop supply chain resilience during these emergencies. As mentioned, learning from disasters has as its primary outcome increased future preparedness (Carley & Harrald, 1997; Madsen, 2009; Oetzel & Oh, 2013; Rerup, 2009; Scholten et al., 2019). Therefore, I develop the following proposition:

Proposition 1a. Learning from disasters leads to higher future resilience

However, I argue that a resilient response to a disaster reduces the possibility of learning. As mentioned, learning from and through disasters are based on a failure of organizational response that prompts the organization to reevaluate its mistakes and routines through a cognitive (and in some cases emotional) process that serves as a stimulus for strengthening existing capabilities and developing new ones (Beck & Plowman, 2009; Rerup, 2005, 2009). Companies that had an immediate positive response to COVID-19 and had continued access to resources did not need to renew their capabilities to survive. For example, Kuckertz et al. (2020) discuss how some start-ups afflicted with COVID-19 were able to rely on a stable flow of resources, thereby maintaining their operations without major disruptions. Other start-ups, on the other hand, struggled to find the resources needed for their survival. This negative situation pushed some of these organizations to proactively adapt to survive, laying the foundations to build future resilience but also engaging in broader opportunities that arise during COVID-19, such as the increased digitization. In addition, the proven past capacity to deal with challenges can create overconfidence in the organization's capabilities that leads to a lack of attention to environmental changes and a failure to revise learned responses. This overconfidence creates threat rigidity in the long term, which is the tendency toward implementing well-learned or dominant responses in the face of a threat (Staw et al., 1981), even when the dominant responses become obsolete or suboptimal. Therefore, I develop the following proposition:

Proposition 1b. Resilience reduces learning opportunities

Learning through disasters instead occurs when disaster-affected organizations do not simply analyze current responses and opportunities to increase their resilience but also address the negative emotions triggered by a disaster and the search for new meanings that follows. As the literature on posttraumatic growth at the individual level postulates (Jayawickreme & Blackie, 2014; McMillen & Fisher, 1998), in the aftermath of a disaster the dominant materialistic worldview gives way to a new altruistic worldview in which human relationships and a sense of belonging to society become central to making existence meaningful, thus prompting individuals to reinforce altruistic values and beliefs (Cohn et al., 2004; Frazier et al., 2013; Oishi et al., 2017; Uchida et al., 2014). For example, Oishi et al. (2017) found that, following an earthquake, there is a boom in the number of people engaged in prosocial jobs, such as firefighting, especially in the worst-affected areas. Similarly, more people were reported to have traveled with their families during the summer following the Great East Japan Earthquake of 2011 than the previous summer (Uchida et al., 2014), suggesting a strengthening of family ties.

The central mechanism is that, in the aftermath of a disaster, individuals are prompted to deeply and mindfully reflect on what the true meaning of life is and how fleeting it is (Linley &

Joseph, 2004). Individuals are forced to come to terms with their mortality and the rampant sense of injustice that comes with it (Oishi et al., 2017). Unexpectedly, in a very short amount of time, entire families, their homes, and their business activities can be destroyed and out of all that people have built over years of daily efforts may remain nothing more than piles of rubble and despair. The world becomes random and chaotic, strongly threatening the existing order and triggering a quest for new meanings (Stephens et al., 2012). Therefore, after a traumatic experience that makes mortality and fairness more salient, surviving individuals develop a greater appreciation of ordinary life, in light of its fragility (Uchida et al., 2014), greater closeness with others and the community (Rao & Greve, 2018; Stephens et al., 2009), greater sensitivity to the needs of others and engagement in prosocial behaviors (Frazier et al., 2013), as well as greater engagement with spiritual questions and new life priorities (Jayawickreme & Blackie, 2014; McMillen & Fisher, 1998; Stephens et al., 2012). Even more so than for other types of trauma that are individual or caused by human malice, a natural disaster such as COVID-19, being a collective phenomenon and mostly unrelated to human guilt, can lead to a sense of unity and belonging to society (Oishi et al., 2017; Rao & Greve, 2018). These new perspectives provide a strong impetus to progressively move away from a materialistic view of life and its purpose toward a greater focus on human values and a higher conception of belonging in society (Chamlee-Wright & Storr, 2011). Uchida et al. (2014) found that disasters reduce individuals' hedonic well-being (i.e., happiness intended as the presence of pleasure and the absence of pain) but surprisingly increased eudemonic well-being (i.e., happiness intended as self-realization and a sense of meaning and purpose in one's life).

Recently, scholars have introduced the concept of organizational posttraumatic growth to describe a similar process at the organizational level (Alexander et al., 2020; Nava et al., 2020). Organizational posttraumatic growth is defined as "the process by which an organization changes its values and beliefs accordingly to the more altruistic and enlightened worldviews emerging after a catastrophic event and become more sensitive and responsive to the threats and opportunities in its environment, beyond resilience or future adjustments to adversity" (Nava et al., 2020). I argue that learning through disasters can lead to organizational posttraumatic growth as the management of negative emotions characterizing this type of learning can lead to the radical change in organizational values and beliefs described by proponents of organizational posttraumatic growth. Therefore, I develop the following proposition:

> **Proposition 1c.** Learning through disasters lead to organizational posttraumatic growth

Based on Propositions 1a and 1b, it can be argued that resilience and learning from disasters create cyclical dynamics. Being negatively affected by a disaster leads organizations to increase preparedness in dealing with future disasters and avoid incurring in losses should such a situation arise again, as postulated by Proposition 1a. This greater resilience, however, is not intended to last. Learning from disasters does not persist in the long-term as new routines implemented to address potential disruptions quickly become obsolete (Madsen, 2009; Smith & Elliott, 2007; Starbuck, 2009). Yet, the confidence that resilient organizations have in their ability to cope with disasters reduces the incentives to reflect, question, and improve their response plans, as postulated in Proposition 1b. It is likely, therefore, that after a period of increased capacity to cope with disruptions, learned responses will become obsolete and, when the organization is hit by a new adverse event, it will no longer be able to stem losses. The inadequacy of responses triggers a negative response to the new disaster, leading to a new cycle of learning

from disasters and a new round of revising and upgrading current responses. In the life of the longest-lived organizations, we can expect these cycles to repeat themselves many times, resulting in a continuous upgrade in disaster response capabilities following the failure of responses in place. Therefore, I develop the following proposition:

> **Proposition 2a.** Learning from disasters and resilience generate cyclical dynamics in which the upgrade of existing capabilities to face disasters follows the periodical failure of existing responses

However, Proposition 1c suggests that a different dynamic can emerge in disaster-affected organizations and transform the organization for the long term. Through the management of negative emotions that lead to greater sensitivity and responsiveness to the needs of the population, or posttraumatic growth, the organization is transformed radically and profoundly in regards to values, identity, mission, and the ability to meet the emerging needs of the population. In most cases, this process results in greater revenues even 10 years after the disaster (Nava et al., 2020). Many organizations during the COVID-19 pandemic demonstrated these dynamics. Kuckertz et al. (2020) describe how, during the pandemic, some start-ups were able to continue growing against all odds through a deep change in their identity. These organizations changed their business models by creating new value propositions, new products and services, new customers targets, and new sales channels better able to meet the needs of the (post)pandemic-affected population by pushing hygiene-based and digitization-based solutions. The increased sensitivity and understanding of the needs of the population have enabled greater responsiveness to the shifting trends and behaviors during and after the pandemic, thus achieving a profound organizational transformation. Therefore, I develop the following proposition:

> **Proposition 2b.** Learning through disasters generates transformative dynamics in which the development of new capabilities follows a greater sensitivity and responsiveness to societal needs

4 | MANAGERIAL IMPLICATIONS

The proposed framework has important practical implications for minimizing the negative effects of cyclical dynamics and maximizing the benefits of transformative dynamics following a disaster. The first set of implications is developed to reduce the negative effects of cyclical dynamics. Cyclical dynamics predict a frequent negative effect of disruptions, resulting in economic loss and the risk of bankruptcy and layoffs. Even if these effects lead to an upgrade in organizational capabilities to cope with future disasters, the cost for the organization and the society can be very high. Organizational failures reduce not only the services available to the society but also the livelihood of the communities involved. Therefore, the first set of implications I propose aims at reducing the overconfidence of resilient organizations and designing tools to constantly upgrade existing responses, to avoid their failure rather than remedy it. The transformative dynamic, on the other hand, supports the society affected by a disaster, as the organizational transformation is based on a greater capacity to understand and respond to societal needs. Organizations that undertake this dynamic, therefore, not only have a greater chance of surviving and ensuring economic continuity for their employees but also provide greater support to community recovery. The second set of implications I propose in this

section aims to discuss what organizational behaviors and practices facilitate the cognitive and emotional processes that lead to a transformative dynamic, especially in light of the COVID-19 pandemic.

As mentioned, reducing the negative consequences of cyclical dynamic requires maintaining a high level of attention and perception of risk, despite past positive responses to disruptions. Such attention is essential to overcome overconfidence and the lack of capability upgrading before it is too late (i.e., before a new disruption with negative effects proves their inadequacy). Breaking the link between damage and learning is therefore important for both organizations and society. The top management should ensure that a healthy level of concern for, and awareness of, the potential negative consequences of future disruptions is present at all levels. Such an alert state is needed to overcome optimism biases and ensure that risk response capabilities and routines are continuously upgraded and effectively implemented across the organization. Otherwise, the change in business priorities following the recovery from a disaster can lead organizations to underestimate the importance of maintaining the ability to deal with disasters and disruptions, despite the increased frequency of these events.

One basic strategy that can be used by most organizations is to periodically consider worst-case scenarios. Organizations should ask themselves: What if a new, more contagious, vaccine-resistant variant spreads to the countries in which we operate in the coming months? What will be the responses of my organizations? What will be the losses? What is the best action plan for each of these eventualities, including the changes in production, procurement, and organizational structure that would be required in each scenario? If current responses are inadequate, it is important to spread the concern at all levels in the organization so that new routines are designed and implemented. A valuable ally for maintaining the level of concern needed to frequently revise the organizational capabilities to face disasters, before disasters manifest, is scenario planning and the use of simulations (Wright, 2005). Such diagnosis and planning tools should not be intended as a panacea. They have the limits to be too general and rarely followed and are often of limited utility when a disaster manifests (Carley & Harrald, 1997; Coombs, 2014). However, as pointed out by Wright (2005), adopting this strategy allows making sense of future events inductively, reducing overconfidence in existing responses, and keeping the level of attention on disaster response high. When using these tools, managers become more open to unexpected future events, are better able to extract meaning from the uncertain, and recognize the inadequacy of existing responses, should these scenarios manifest. Therefore, this basic device can help the organization to systematically rediscuss and reevaluate current responses without incurring in threat rigidity.

Transformative dynamics, as noted above, are less frequent and more difficult to achieve, despite the benefits to organizations and society. A transformation in the values, mission, and identity of the organization able to drive a more effective response to the needs of the population happens, according to the proposed framework, when the negative emotions triggered by the disaster are managed effectively. In addition to a cognitive process to discuss the adequacy of current responses and their potential improvement, typical of cyclical dynamics, transformative dynamics require an emotional process that leads to the questioning of the sense of existence of the organization itself, making it more sensitive to the needs of the society afflicted by the disaster. To achieve a transformation, the discussion should not be limited to organizational existing responses but also focused on understanding the negative emotions and the difficulties of different stakeholders. In this way, it is possible to build an improved, more ambitious vision of what the organization can do to support its stakeholders and its role in the social and natural environment in which it is embedded.

I argue that a necessary condition to reach this transformation is an organizational environment that embraces and allows for psychological safety, defined as "a shared belief that the team is safe for interpersonal risk taking" and "a sense of confidence that the team will not embarrass, reject, or punish someone for speaking up" (Edmondson, 1999, p. 354). Psychological safety allows for the social sharing of emotions that is an important catalyst for embracing transformation during and after the COVID-19 pandemic. Building psychological safety requires the establishment of mechanisms and an organizational culture that welcomes constructive criticism, employee engagement, emotion sharing, and an open and collaborative discussion about how to provide higher support to the employees and the post-COVID-19 society. At the team level, it requires the creation of a space to communicate, express, and manage emotions, with the team leader playing a crucial role in developing such space (Ashkanasy, 2003). At the organizational level, it requires policies and routines to favor an organizational climate in which emotions can be expressed and in which work-associated stress is periodically evaluated and actions are taken to maximize the well-being of employees and other stakeholders (Ashkanasy, 2003).

An active management of emotions supported by psychological safety allows for open conversations with stakeholders and other institutions, through which criticism and even negative emotions can be shared. As mentioned, emotion sharing is needed to delineate a new mission for the organization that can take into account the newly emerged social and natural needs and the changes that affect the society slowly recovering from the pandemic. The engagement is likely to enlighten the organization about new ways through which it can answer to the emerging needs of the society, enhancing collective experimentation with the relevant stakeholders to define new ways to address social needs and making the most of the organizational resource potential. This emotional process involves organizational members at all levels, as organizational members are required to collectively face the negative emotions emerging outside and within the organization during the pandemic. In this way, it is possible to develop and share a renewed collective vision of the organization's potential and how to achieve it. Organizational members are therefore encouraged to embrace "sensemaking in chaos," that is, the capability to make sense in situations of high uncertainty and instability in order to explore new better ways through which the organization can manifest its identity and relate to its environment and stakeholders (Das & Kumar, 2010).

5 | CONCLUSION

This study has the potential to make several contributions to the literature on organizational responses to natural disasters. First, I combine the literature on two different types of organizational responses to disasters, namely resilience (Williams et al., 2017; Williams & Shepherd, 2016) and learning from rare events (Beunza & Stark, 2003; Carley & Harrald, 1997; Kendra & Wachtendorf, 2003; Madsen, 2009; Oetzel & Oh, 2013; Scholten et al., 2019), to discuss how these processes dynamically interact over the long term. Although traditionally discussed separately, the framework developed in this study provides insights into the relationships between these processes in the long-run, which are only visible when we abandon the "single event" case study analysis typical of this literature and instead adopt a long-term perspective on organizational life. In this way, I contribute to the literature by showing how different responses to disaster are not independent but create dynamics and cycles that impact the life of the organizations and communities affected by a disaster.

Second, the framework I propose highlights a shortcoming of resilience, responding to the call of Williams et al. (2017) to consider and discuss the potential dark sides of resilience. I argue that increased resilience reduces the potential for learning and the continuous revision and upgrade of disaster response capabilities. Especially if there is no conscious effort to maintain a high level of alertness, the risk of higher past ability to cope with disruptions is an overconfidence in the organization's ability to meet future challenges that result in myopia and threat rigidity. To remedy this problem, I propose some strategies to artificially keep the perception of risk to incur in losses and damages following a disruption constantly high for even the most resilient organizations.

Third, I analyze the mechanisms, temporal orientation, and outcomes of learning through disasters, which is understudied in the literature despite increasing empirical evidence supporting its existence (Lampel et al., 2009). The learning literature has focused on increasing future preparedness for disasters as the primary outcome of learning. While this focus is important, little is known about the broader change in values and identity induced by disasters (Birkmann et al., 2010) and especially how this change can positively affect organizational opportunities and threat recognition so that the organization can be built back better, as shown by the Baltimore & Ohio Railroad Museum (Christianson et al., 2009). This lack of attention is surprising since the narrative gaining traction in many companies is that the challenges of the beginning of the 2020s can be an opportunity for renewal and growth, leading the organization to strengthen its competitive positioning (McKinsey & Company, 2020). For example, the Chief Financial Officer of Coca-Cola said at the Deutsche Bank Global Consumer Conference in June 2020 "There's broad alignment and an objective to emerge from the crisis with an even stronger leadership position." This work provides greater clarity on the mechanisms of this transformation and concrete guidelines on how to achieve it.

Moreover, I build on the theoretical propositions of this study to derive concrete and actionable actions that can be implemented by decision-makers in organizations affected by the COVID-19 pandemic. In this way, I contribute to a better understanding of how positive transformation can be enhanced in the aftermath of a disaster, with positive effects not only on the organization but also on the broader society facing the pandemic.

I certainly do not presume that this work is exempt from limitations. First, while developing the propositions, I do not take into account the effects of different disasters. The deep sensemaking process leading to a change in organizational values and identity following a disaster might happen only when the disaster affecting the organization is truly catastrophic. Learning through disasters, therefore, might be rarer for minor disasters, like those only provoking material damages but no human losses. Moreover, for analytical purposes, I aggregate different types of disasters with a different degree of predictability. In certain areas of the globe, droughts and floods are so frequent that their predictability is high, while other disasters, such as earthquakes or hurricanes, are less frequent and less easy to predict. Certain disasters, like earthquakes, are particularly intense and last for only a few minutes, while others, like pandemics, can last for years. Future research should, therefore, study empirically how each of the three types of disaster responses underlined in this study occurs in the different contexts, embedding the characteristics of predictability and persistence of the disaster in the analysis. On top of addressing the above-mentioned limitations, future research should continue to explore how disaster response affects organizations in the long term, especially through quantitative studies that can test the propositions of this work. In this way, light can be shed on how some organizations can recover fast, innovate, and rise from their ashes with a better capacity to face new challenges, further helping the organizations and communities struggling with disasters and pandemic responses.

ORCID

Lucrezia Nava https://orcid.org/0000-0001-7579-6398

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