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Synthesis

Social identity and place-based dynamics in community resilience building for natural disasters: an integrative framework

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ABSTRACT. Natural disasters such as wildfires, hurricanes, and droughts pose fundamental challenges to ecosystems and the communities that inhabit them, hence triggering and even forcing community renewal over time. In preparation for future disasters, communities need to develop integrated disaster responses, that is, responses that combine scripted action (such as disaster plans and procedures) and emergent action (such as improvised network formation and spontaneous acts of solidarity). Although scripted action can be planned by authorities, emergent action requires deeper work on the social identity underpinnings of a community. Therefore, we conduct an integrative review to synthesize insights from social identity and social-ecological resilience studies into a framework that prefiguratively explains why some communities likely better recover from natural disasters than others. In essence, we argue that community identity salience, disaster frames, and memory work interact in shaping resilience building. Our work thus integrates social identity into local understandings of community resilience by explaining place-based identity dynamics that shape community adaptation and transformation in preparation for disasters.

Key Words: *community identity salience; community resilience; disaster frames; integrative review method; memory work; resilience building*

INTRODUCTION

Communities around the world experience an increase in the frequency, strength, and duration of extreme adverse events, including hurricanes, floods, wildfires, heatwaves, and even pandemics (Walker et al. 2023). Although regional differences exist, the global rise in environmental extremes has amplified vulnerabilities across many communities (Folke et al. 2021). As the rising likelihood and intensity of extreme environmental events become more acute, the relationships between human communities and their surrounding environments become ever more critical for their resilience (Brown et al. 2019). With environmental and human components now more intertwined than ever within social-ecological systems (Folke et al. 2021), it is imperative to understand how community resilience to natural disasters evolves in the face of shifting environmental dynamics.

In a world increasingly shaped by climate change and other crises, scholars began to view community resilience as more than the ability to sustain pre-existing conditions: instead, resilience is framed as the capacity to adapt to and even influence the course of environmental, social, and economic change (Walker et al. 2006, Fazey et al. 2018, Carmen et al. 2022). Pre-disaster adaptation is particularly important, as attaining a new state of stability can reduce exposure and vulnerability to potential hazards (Cutter et al. 2008, Uddin et al. 2020). Building on this forward-oriented understanding (cf. Norris et al. 2008, Magis 2010, Uddin et al. 2020), community resilience can be defined as "a process linking a set of networked adaptive capacities to a positive trajectory of functioning and adaptation in constituent populations after a disturbance" (Norris et al. 2008:131).

A shared sense of belonging among community members plays a central role in developing these adaptive capacities, enabling them to respond in an integrated and effective manner (Marquis and Battilana 2009, Cox and Perry 2011, Grey and O'Toole 2020). This is particularly pertinent because disasters not only disrupt material conditions but also undermine the shared sense of belonging, causing psychological suffering and destabilizing individuals' self-narratives and identities (Cox and Perry 2011). Disaster-induced disruptions intensify the need for continuity and normalcy, often driving individuals to reaffirm and negotiate shared identities within their local communities (Dinger et al. 2020). To better understand this sense of belonging in community resilience, it is necessary to consider both place-based dynamics ("Where am I?") and local social identity dynamics ("Who am I within this community?"; Cox and Perry 2011).

We argue that understanding community identity dynamics, as an often overlooked social-cultural factor, is fundamental to building the networked adaptive capacities that underpin community resilience. To substantiate this argument, this paper briefly introduces the empirical example of Limonade in Haiti in the aftermath of the 2010 earthquake, underscoring the importance of community identity in a resilient disaster response. This example inspires and justifies the application of an integrative review approach, which is a knowledge-synthesis method that bridges fragmented scholarly "conversations" across diverse academic communities to generate new insights (Cronin and George 2023). This review method emphasizes prescriptive theorizing, asking how things should be and how they can be achieved, complementary to descriptive theorizing, asking why and how things are interrelated (Wickert 2024), to pursue theoretical novelty (Cronin and George 2023) when advancing community resilience as a well-researched concept.

As a result of our integrative review, this paper proposes an integrative framework of resilience building that highlights and connects (i) disaster frames, as communities are better prepared for a disaster when people share collective frames on the causes of the catastrophe (cf. Rao and Greve 2018); (ii) community identity salience, because actors emotionally connect with each other when they identify with the community they inhabit (cf.

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Farny et al. 2019); and (iii) memory work, because collective disaster memories affect future disaster recovery (Dwyer et al. 2021). These social-cultural factors can be shaped proactively and impact any community resilience process, regardless of people's specific adaptive capacities. Finally, contributing to the latest research connecting place, identity, and resilience concepts (Brown 2015, Brown et al. 2019, Uddin et al. 2020), we offer eight propositions that explain how community identity dynamics are interconnected in preparation for and response to disasters. As a result, we add to the community resilience literature by better integrating social identity with a place-based understanding of community resilience.

RESEARCH METHOD: AN INTEGRATIVE REVIEW

Integrative reviews represent a valuable knowledge-synthesis method when different scholarly circles work in parallel instead of connecting with each other's work on an empirically relevant phenomenon (Cronin and George 2023). This method is particularly apt for building theory on community resilience to connect fundamental insights across currently disjointed scholarly conversations, such as social-ecological studies on one end and social identity studies on the other. Today, the social-ecological literature offers a comprehensive, systemic entry to the study of resilience (cf. Cutter et al. 2008, Berkes and Ross 2013, Carmen et al. 2022). However, we see a need for knowledge-synthesis on the place-based and community identity dynamics in disaster preparation in order to offer actors a novel framework that builds societal actors' awareness in relation to their future community resilience endeavors (see also Brown 2015). In the following, we reconcile the Limonade community response to the 2010 earthquake in Haiti to empirically demonstrate the usefulness of linking social identity and community resilience concepts and then methodologically explain the application of the integrative review method.

Empirical support for the integrative review

On 12 January 2010, a 7.2 magnitude earthquake struck Haiti, causing an unprecedented level of physical damage, particularly in the capital region in the center of the country. Besides many casualties and psychological injuries, the earthquake also unleashed a wave of internally displaced people. In response, a large influx of people and resources from abroad tried to alleviate Haitians' suffering and help cope with the situation. However, in this moment of profound collective disorientation among local citizens following a disaster, the additional resources further aggravated the level of disruption of local social routines (Katz 2013). The international disaster response, together with foreign NGOs, created a parallel administrative system to decide on what must be done without an adequate integration of local people and institutions. The planned, scripted response was mostly inefficient and perceived as inadequate, not meeting locals' expectations (Katz 2013).

Simultaneously, communities across Haiti experienced a surge of emergent actions because of the profound reorientation of the relatively stable "story of self" required after such profound levels of material destruction and suffering that goes beyond provisioning for basic goods and services. These emergent actions underscore the importance of navigating, negotiating, and even reconstructing local community identities (Cox and Perry 2011). Although the recovery of Haiti after the earthquake is largely a story of failed emotional, psychological, and social recovery, a rural community called Limonade experienced a manifestation of community resilience when citizens, together with local organizations, businesses, and the mayor through their collective actions also offered people guidance on "Who am I" and "Where am I" after the earthquake.

Gabrielle Vincent, director of a locally active NGO, and Steve Mathieu, in charge of a Limonade agribusiness, together with the mayor, led a local emergent disaster response. The mayor summed up his memory of the post-disaster situation: "The earthquake hit everybody, because in all the 140 communities everybody lost someone. ... Now, what happened, everybody who had relatives in the provinces returned [from the capital]. Like, there was young people from Limonade who died, and those who had broken legs and who were traumatized" (Farny et al. 2019:770). Local inhabitants reported feeling "obliged to give more of my time to [a local organization]" as the disaster response prioritized the needs of local inhabitants (Farny et al. 2019:782), thus effectively drawing on a local place-based identity. To serve 5000 internal refugees coming to a community of 20,000 inhabitants, the Limonade community improvised with the available resources, e.g., repurposing an old UNICEF tent as a make-shift school, as an example of highly emergent action. Gabrielle Vincent, Steve Mathieu, and the mayor assessed the situation, assigned and mobilized various roles to local inhabitants and organizations, and coordinated an effective local disaster response.

These central actors were able to create a shared understanding of what happened to people, individually and collectively, during the earthquake emergency. That enabled them to leverage and connect the various capacities and resources of the local organizations into an integrated disaster response. Because of their experience during and after the earthquake in Limonade, they developed supportive information materials (i.e., scripted action), which turned out to be vital during a Cholera outbreak a year later (Théodile 2018). They quickly set up information stands to distribute hand-outs collected from an existing network of supporting organizations, developed information material on correct hygiene practices, and mobilized local citizens to monitor the situation and build trust in the integrated response. At the same time, they actively searched for funding for a newly born idea for communal toilet solutions (i.e., emergent action) as a potential solution to improve the sanitary situation in the long run. Throughout this process, the core actors were able to effectively link the adaptive capacities of several civic society actors by both developing a coordinated response and, later on, engaging them in making a local movie (Théodile 2018) as an act of collective remembrance of the community disaster organizing process. All together, these disaster responses supported the development of a shared sense of belonging that transformed the community, an exceptional process relative to what happened elsewhere in the country.

Methodological application of the integrative review method

Typically, an integrative review follows three steps (Cronin and George 2023) that help prefiguratively engage with the empirical phenomenon; that is, to envision and inform future action that stems from the nexus of the currently disconnected scholarly circles. First, from the field of social-ecological studies, we borrow the notion of resilience as a cross-scale process aiming for a desirable transformation (Holling and Gunderson 2002, Walker et al. 2004,

Ungar 2018). Second, inspired by the Limonade example and our own empirical observations in multiple disaster contexts, our review draws on social identity theories focusing on their collective formation and cohesion, especially in the context of geographically bound communities (Patvardhan et al. 2015, Hertel et al. 2019, Schaubroeck et al. 2022). Social identity theories are particularly useful in explaining the shared sense of "who we are" among people in the same organization and community or as members of larger social groups (Tajfel and Turner 1979). The choice to integrate insights from two not directly connected yet relevant bodies of literature on community resilience was deliberate.

The first step of the integrative review further involves the choice of the synthesis vehicle, in our case, proposing a redirection of a field's perspective on a topic. This redirection "organizes domain knowledge by structuring it in such a way that insights that promote new kinds of research emerge" (Cronin and George 2023:171). In the context of community resilience research, redirection aims to conceptually advance people's place-based connections as a source of resilience (Norström et al. 2022). This redirection starts from the established understandings of communities as human collectives geographically and socially bound by place (Marquis and Battilana 2009) and an awareness that social capital and cohesion play an existential role in how communities experience extreme adverse events (Carmen et al. 2022). Through redirection, we embraced the call in the community resilience literature that "reframing resilience to be more inclusive of social factors that attend to place-based dynamics can give more agency to community members and strengthen the connections that support recovery and adaptation amid increasing frequency of unpredictable and hazardous weather patterns" (Harangody et al. 2022).

Reviewing the literature represents the second step of the integrative review. In the spirit of integration, this means "going into unfamiliar research communities and reconciling unfamiliar concepts and methodologies" and striving "to give each community of practice a voice (i.e., balance) in terms of presenting the important findings" (Cronin and George 2023:176). In addition to the database of literature that we have built on community resilience research over the years, we also consulted GoogleScholar and EbscoHost, searching for additional relevant articles on "community identity," "place-based identity," and "place embeddedness." Using the literature research engines, we also searched words highlighting community sub-groups ("ethnic identities," "ethnic minorities," "socioeconomic differences") or challenges between identities ("identity clashes" or "disidentification") in relation to disaster resilience. Using our redirection aim as a compass, the literature review therefore cuts across scientific fields of geography, psychology, sociology, politics, history, management and organization, and disaster studies, revealing that, despite their wide disciplinary range, these scientific fields all pay attention to social dynamics within and across organizations in relation to places affected by disasters.

The third step of an integrative review entails thematic synthesis as disciplined imagination. From the papers selected across disciplinary fields, we generalized and juxtaposed themes emerging from the papers' findings. This generalization into broader and distinct themes requires reading and analyzing papers with an eye for identifying patterns at higher levels of abstraction. Building on our choice to connect social identity dynamics and place-based community resilience, we conceptually linked three common concepts found in the literature: place-based identity, disaster frames, and memory work. We selected place-based identity salience as the first key concept, as numerous studies stressed the place-based nature of disasters causing a breakdown of routines, triggering people's wish to collectively find some sense of belonging to other individuals and the place they inhabit (Cox and Perry 2011, Berkes and Ross 2013, Dinger et al. 2020). Moreover, we drew attention to disaster frames as disasters cause disorientation and a need to make sense of a highly dynamic situation, which requires that people develop new mental schemes, i.e., frames, regarding who is to be blamed and what needs to be done (Cutter et al. 2008, Rao and Greve 2016, Williams and Shepherd 2021). Furthermore, memory work appeared as an important concept to capture how people actively try to understand what has happened and ascribe meaning (Adger et al. 2005, Norris et al. 2008, Arora 2018). Finally, we developed a framework and eight propositions that integrate these themes in community resilience building for disaster preparation.

THEORETICAL FOUNDATIONS

Communities, place, and disasters

Communities and their surrounding landscapes are deeply interconnected (Morgan et al. 2024). As communities, defined in this article as communities of place, represent human collectives bound both geographically and socially by place, their boundaries are inherently fuzzy and evolving (Marquis and Battilana 2009). On the one hand, these represent collectives physically living in geographically defined areas (Maida 2007, Aldrich and Meyer 2015), while on the other hand, like other communities not rooted in place (e.g., professional, online or consumer communities), they represent "collections of actors whose membership in the collective provides social and cultural resources that shape their action" (Marquis et al. 2011:16). Therefore, each community of place leverages social and cultural resources that are distinctively linked to their own geography and history. For instance, social-ecological research found that cultural factors and historical power relations structurally inhibit Native Americans in the U.S. in their equal access to water (Norström et al. 2022).

Urban neighborhoods, rural villages, mountain valleys, or islands are all communities of place. Yet, some of them have more shared historical or geographical points of reference, e.g., a memorable episode in history, like resistance during a military occupation, a unique natural or man-made wonder, or an iconic mountain or municipal building that socially binds them together. In addition, some may be more socially bound by language (Brown and Humphreys 2006), traditions (Dacin and Dacin 2019), symbols (Marquis et al. 2011), or their relation to nature (Norström et al. 2022). Place-based communities with a defined set of social and cultural resources shaping their action are considered "more of a community" than others (Williams and Shepherd 2021). This geographic-social ambivalence of communities of place matters for their resilience, as social bonds play a role in coping with adversity.

Furthermore, this paper focuses on communities' ability to deal with extreme adverse events, i.e., disasters rooted in human-nature relations, such as wildfires, floods, or a pandemic. Disaster recovery is a prolonged (often unfolding over years and decades), highly dynamic and multidimensional process with strong place-based context dependencies (Spoon et al. 2023). The rising frequency and intensity of most of these extremes is driven by human activity, be it greenhouse gas emissions, the straightening of rivers and building on floodplains, or increasingly close interactions with wild animals and their pathogens (Ehrlich and Ehrlich 2022). Disasters, in turn, influence human actions, most immediately and sometimes inadvertently increase the vulnerability of communities to environmental extremes (Fazey et al. 2010). Because of their unpredictable and acute occurrence, disasters have large-scale effects for any community and social-ecological system (Walker et al. 2023), but can also create a window of opportunity for larger scale transformations (Morgan et al. 2024).

Resilience

Since the seminal work on ecological resilience (Holling 1973), several branches of social sciences, including sociology, psychology, economics, management, and policy have embraced the notion of resilience. Resilience is often understood as the capacity of linked social-ecological systems to absorb a spectrum of disturbances and reorganize to retain essential structures, processes, and feedbacks (cf. Adger et al. 2005, Aldrich and Meyer 2015, Morgan et al. 2024), also referred to as reactive and responsive resilience (Carmen et al. 2022). However, this article follows a view of resilience "as a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation" (Norris et al. 2008:127), emphasizing proactive resilience, i.e., the process of reflective anticipation with the aim of shaping a desirable future trajectory to confront plausible disasters (Carmen et al. 2022). This view of resilience focuses on the ability of an entity to adapt to continuous change (Magis 2010, Uddin et al. 2020).

Our future-oriented view of resilience further assumes that resilience is a process rather than a trait or outcome (Walker et al. 2004, Brown 2015, Ungar 2018). Resilience processes unfold as adaptive cycles: actors learn, adapt, and change through their experience of coping with adversity (Holling and Gunderson 2002, Carmen et al. 2022). Cycles of learning and adaptation prepare social actors to self-organize and cope with future possible adversity. Resilience is thus a complex process accounting for interactions within and between systems and, importantly, involves transformation, which "like adaptation, describes change but does not predict the desirability of the change ... transformation as a resilience process is associated with constructions of meaning that determine if a change is experienced as advantageous to one or more parts of a system" (Ungar 2018).

In particular, the transformative aspect of resilience describes how, during and after adversity, people and organizations turn themselves into something new (Folke et al. 2010). However, this aspect is least researched and little understood (Brown 2015). A recent systematic literature review shows that slow-changing relationships (trust and reciprocity) and underlying social-cultural factors, in particular norms and identities, drive proactive resilience toward a sustainable trajectory (Carmen et al. 2022). These social-cultural factors are most effectively developed at a local level (Cox and Perry 2011) when developing collaborative strategies for disaster adaptation and transformation (Jacobs and Cramer 2017). For example, a study on wildfire-prone social-ecological systems in Colorado found that a positive transformation of social-cultural factors after an actual disaster experience is possible, underscoring the need to disaggregate the various components of a resilience process (Cheney et al. 2024).

Social identity

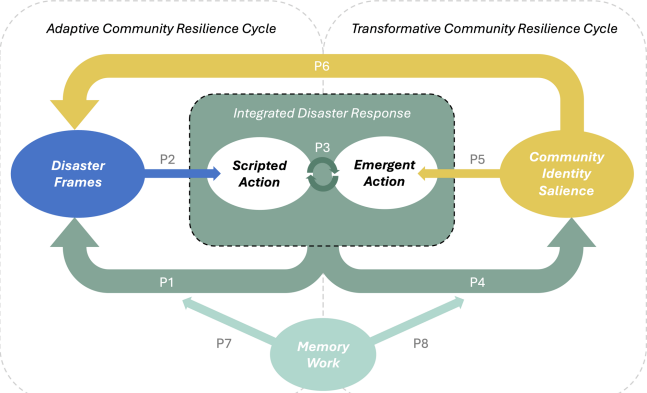
"Identity, at all levels, taps into the apparently fundamental need for all social actors to see themselves as having a sense of "self" ... and act according to deeply rooted assumptions about "who we are and can be"" (Gioia et al. 2013:127). Social identity theory argues that people are self-aware of whether they identify with a social group or not (Tajfel and Turner 1979). In some instances, people collectively identify with others in the place they inhabit; hence, their collective identity inextricably relates to its geographical, historical, and traditional attributes (Marquis and Battilana 2009, Grey and O'Toole 2020). These identity attributes are "cognitive representation[s] of features that describe and prescribe" a group, and "give one's group membership meaning and reduce uncertainty" (Hogg and Terry 2000:123). Social identities reflect the sense of "who we are in relation to the place we live in" and then bring together social groups with "shared frameworks or mental models upon which actors draw to create common definitions of a situation" (Marquis and Battilana 2009:292).

Social-ecological systems research stresses that landscape changes affect not only social-ecological relationships but also people's social relationships with each other (Riechers et al. 2020). From an identity perspective, this is because multiple group identities influence how communities cope and adapt to disasters. In places with a virulent community identity shared by many, community members likely relate and support one another in situations of need (Boe-Lillegraven et al. 2024), thus making the community stronger (Almandoz et al. 2017). Vice versa, when a community identity is weak, people might experience distance and a lack of shared attributes, such as common histories and memories (Lippmann and Aldrich 2016). For instance, communities might struggle to build bonds or shared attributes between migrants' identities and the identities of their host communities (Strang and Ager 2010), promoting "us-versus-them behaviors and attitudes" (Almandoz et al. 2017:197) that offers a fertile ground for marginalizing and stigmatizing minority groups inhabiting that place (Tracey and Phillips 2016).

COMMUNITY RESILIENCE BUILDING FOR DISASTER PREPARATION: AN INTEGRATIVE FRAMEWORK

Our framework of community resilience building connects community identity salience, disaster frames, and memory work as three essential social-cultural features in disaster preparation. Community resilience building requires attending to different actors' perspectives, needs (Carmen et al. 2022), and the way they prepare for a joint engagement with a disaster (Uddin et al. 2020). As such, "community resilience must be framed within a deeper understanding of the subjective views of the actors themselves, their local knowledge and culture, and the historical context of the place or social formation" (Uddin et al. 2020). Essentially, the

Fig. 1. Community resilience building framework: the role of community identity salience, disaster frames, and memory work in community resilience processes. The framework illustrates how adaptive and transformative cycles of community resilience complement each other in supporting integrated disaster responses during disaster recovery. In an adaptive community resilience cycle, the formation of disaster frames drives the effectiveness of scripted disaster response action (see P1, P2, P3). In a transformative community resilience cycle, community identity salience shapes the formation of emergent disaster response action (see P4, P5, and P6). Disaster memory work supports both adaptive and transformative cycles (see P7 and P8).



community resilience building framework prefiguratively explains why some communities recover, adapt or even radically change from natural disasters more effectively than others (see Fig. 1).

The framework suggests that resilience building partly consists of an adaptive cycle that connects people's perceptions (i.e., disaster frames), their established understanding of what to do (i.e., scripted actions), past disaster experiences, and the actions to remember and learn from the past (i.e., memory work). Hence, the first central social-cultural feature of the framework is disaster frames, that is, mental schemes with diagnostic (e.g., "who is to blame?") and prognostic attributions (e.g., "what must be done?"), as they help community members to interpret the disaster (cf. Rao and Greve 2018). We stress that community members develop perceptions about disaster events based on social-cultural features rather than as patrons of scientific inquiry and understanding (Jacobs and Cramer 2017, Carmen et al. 2022). More specifically, our framework suggests that more congruent disaster frames strengthen the effectiveness of planned and trained activities (i.e., scripted actions) during a disaster response and recovery (Propositions 1 and 2). The effectiveness of scripted actions is further enhanced when community actors are functionally diverse, that is, when they bring diverse skills and capabilities to ensure much needed response diversity (Gret-Regamey et al. 2019, Walker et al. 2023). This adaptation process can be proactively adjusted through active acts of memory work, that is, the performance of re-remembering through narration (Moulton 2015), to shape what is to be remembered about previous disaster experiences (Proposition 8).

The community resilience framework also emphasizes that the local community identity likely transforms the joint ability to effectively address a disaster. Hence, the second important social-cultural feature in the community resilience framework is community identity salience, which captures a place-based identity shared with other people and organizations inhabiting a place that is superordinate to organizational and social group identities (Howard-Grenville et al. 2013, Hertel et al. 2019), in certain situations. A community identity is salient when it is "highly central to an individual's global or core sense of self or is otherwise highly relevant to his or her goals, values, or other key attributes" (Ashforth and Johnson 2014:32). Our framework emphasizes that community identity salience affects how strongly people in a community will engage in emergent action following a disaster event (Proposition 5) and how effective this emergent action is in combination with the planned disaster response activities (Proposition 3), as community salience also shapes how similarly people understand and associate risks with certain disaster scenarios (Proposition 6). We talk about a transformative (and not an adaptive) process here because the identity of a place-based community changes, referring to a change in underlying values and social parameters (Abson et al. 2017).

Our view of community resilience building further implies that this transformation process can be steered in positive and negative ways through memory work (Proposition 7). Hence, the third essential social-cultural feature of our community resilience framework is local memory work. The framework views the salience of community identity as the central enabling feature in a community's ability to handle, grow from, and transform in preparation for low-probability but high-impact environmental perturbations such as disasters. We see both these adaptation and transformation cycles emerging over longer periods of time, resembling peoples' identification with each other as well as their connection to the place they inhabit. In the following, we develop eight propositions to explain how these social-cultural dynamics interplay in resilience building.

Disaster frames in resilience building

In preparation for future plausible disasters, communities learn from actual, lived experiences that are passed on over generations and across social groups (Norris et al. 2008). Along with their material consequences affecting livelihoods, disasters generate "explosions of meaning" in communities (Williams and Shepherd 2021). "After catastrophic change, remnants ("memory") of the former system become growth points for renewal and reorganization" for the community (Adger et al. 2005:1037). The disruption brought about by the disaster generates community efforts to explain things that did not fit with previous worldviews (Weick 2010). For example, such efforts reflect on how community coping strategies could be made more effective and on how to act differently if a similar disaster were to happen again. These understandings "are commonly formulated as recommendations that may or may not be implemented in time for the next hazard event" (Cutter et al. 2008:603). From this perspective, the goal of reflecting on past coping strategies is to anticipate and contain future disasters (Weick 2010).

Throughout this process, we argue that community disaster frames generally converge more strongly when community members' disaster response activities are interconnected in ways that meet each other's needs. For example, based on several

experiences with floods and earthquakes in the 2000s, metropolitan communities in Taipei (Taiwan) developed a combination of municipal protocols and community engagement practices in collaboration with local universities to participatorily adapt their disaster management plans (Chou and Wu 2014). Because of greater effectiveness in coping with subsequent disasters in the early 2010s, these communities reinforced their support of how government authorities diagnose future risks and implement better emergency management procedures (Chou and Wu 2014). In more resource-scarce contexts, Indigenous communities experienced similar patterns of converging frames from their past disaster history. For example, oral traditions and situated practices regarding tsunamis and floods, such as observing the water in the wells, running to the hills if the sea water recedes from the shoreline, and refraining from immediately returning home after the first disaster event, played critical roles in saving lives of Indigenous people in Simeulue Island, Indonesia (McAdoo et al. 2006), the Solomon Islands (Lauer 2012), and the Andaman Islands, Myanmar (Adger et al. 2005). Despite technological advancements and stricter government measures, these traditional disaster frames are still strongly embedded in these communities (Balay-As et al. 2018).

Contrarily, a history of disaster response failure undermines communities' convergence of future disaster frames. For instance, until 2010, Brisbane and the inhabitants of Queensland shared a strong conviction that the Wivenhoe Dam would protect the region from floods. Government and house owners in the region reported similar standpoints on the safety of the region, and insurance markets reflected the same belief (McKinnon 2019). However, in January 2011, extremely heavy rainfall brought about widespread flooding across large areas. As a result, debates ensued about whether dam management caused the floods or if the absence of the Wivenhoe Dam would have made it less bad. As a news documentary reported in the weeks following the disaster, the 2011 flood was destined to "forever destroying the myth that Brisbane was flood proof" (McKinnon 2019:211). Based on this evidence, we state the following: P1 (Disaster Frame Adaptation): The greater the integration of disaster response activities, the more convergent disaster frames become within a community.

At the heart of an effective disaster response is a joint understanding of the problem to be addressed, which requires a convergence of disaster frames among affected community actors. Although disasters arise when natural hazards strike vulnerable social-ecological systems, people and communities use different disaster frames to filter the available information, make sense of the environmental perturbation, and organize appropriate responses (Weick 2010). As such, communities simultaneously experience various subjective conclusions about "what is going on here" and "what [one] should do about it next" (Maitlis and Christianson 2014:70). Disaster responses involve framing: interpreting events based on existent knowledge, values, and culture. For example, in analyzing community responses to a pandemic wave, Rao and Greve (2018) found that communities framing the disaster as a force majeure experienced more inter-actor cooperation and a higher civic capacity in developing their response. Hence, disaster frames "offer and justify treatments for the problem and predict their likely effects" (Entman 1993:52) such as when policy makers and scientists develop frames to plan responses to climate-related emergencies through scenario planning (Fünfgeld and McEvoy 2014).

We argue that the perception of disasters influences how effectively actors can rely on scripted actions (a planned disaster response), particularly when the disaster unfolds with predicted patterns and scale. For example, early warning systems activate lines of communication that mobilize resources and qualified personnel to meet immediate community needs (Linnenluecke et al. 2012). Based on past experiences, citizens may be mentally and materially prepared to face the emergency with scripted routines and plans (Muñoz et al. 2019). Sometimes communities have convergent frames even in the face of unprecedented disasters, those when "what is going on here" and "what [one] should do about it next" is mostly outside the realm of people's experiences. When facing the spread of a new virus, like COVID-19, or when confronting ecological hazards such as wildfires, droughts, or heatwaves, community members may "notice and bracket ecologically material cues from a stream of experience" (Whiteman and Cooper 2011:890), thereby interpreting in remarkably similar ways adverse events that they never experienced before. Therefore, we advance: P2 (Scripted Action): The more disaster frames converge, the more scripted actions guide community actors' responses to the disaster.

Emergent action frequently complements and/or replaces scripted action in a disaster response (Majchrzak et al. 2007, Shepherd and Williams 2014). Although scripted responses might fail in communities with divergent disaster frames, emergent responses, such as improvising volunteers, likely fill their void (Webb and Chevreau 2006). Along with the scripted action of designated organizations, community members often contribute as emergency medical service providers in moments of extremely urgent need (Kendra and Wachtendorf 2003, Ross and Carter 2011). Especially in the face of unprecedented disasters, with high decision-making uncertainty, improvisation becomes part of the script itself. For example, given the challenge of unequivocally predicting and understanding patterns, Western Australia's response to bushfires turned toward relying on multiple nodes of control within communities (Pahl-Wostl 2009). This involved an anticipatory distribution of disaster response responsibilities from local public sector authorities to (non-emergency) private actors (Linnenluecke and McKnight 2017) and citizens (O'Hare 2018). Hence, in these situations of "scripted action voids," either expected or unexpected, emergent action becomes a legitimate form complementing scripted action (Majchrzak et al. 2007).

However, emergent action unfolds not only when scripted action fails, but also when some community members believe that it will fail, for example, because of little trust in authorities. As Twigg and Mosel (2017:446) explain, "emergence is most likely to occur when people believe that existing emergency management organizations cannot cope with all the problems and needs generated by a disaster." During the first several COVID-19 waves, some community members questioned (or ostensibly opposed) the scripted necessity of social distancing and masks to contain the spread of the virus, developing instead self-help groups to cure the disease with natural or spiritual remedies, or elaborating conspiracy theories that denied the existence of COVID-19 itself (Uscinski et al. 2020). This illustrates "how different systems of knowledge about our ambiguous physical environment, and competing systems of action within our fractious society" (Mitchell 2006:1) also lead to emergent action. Therefore, we propose P3 (Action Complementarity): The more scripted action and emergent action complement each other, the more integrated, and therefore effective, the disaster response will be.

Community identity salience in resilience building

Experiences of widespread mutual support during disasters also cement place-based group identities, hence strengthening community identity salience. Communities experiencing disaster response activities inevitably witness an "explosion of meanings" that may cement, weaken, or even shatter their identity cohesion. After the disaster response, communities take stock of available recovery strategies and start rebuilding their social infrastructures accordingly (Berkes and Ross 2013). This renewal stage offers opportunities for communities to profoundly change, i.e., transform social-cultural structures in either cohesive or destructive ways (Chapin et al. 2009). For instance, the floods that occurred in Ladakh in 2010 affected 64 villages and more than 9000 people. Despite the deadly violence of the flood and the inability of resorting to emergency procedures, the Ladakhi community made remarkable efforts to support each other. "Muslims helped Buddhists and vice versa. Children saved animals. These lived experiences of togetherness had increased their social solidarity in a post-disaster context" (Arora 2018:318). Similarly, in the Philippine mountains, a major typhoon in 2009 helped revive the Indigenous Igorot community spirit of mutual assistance (*bayanihan*), which members proudly consider a shared identity attribute distinguishing them from the Philippines' lowland inhabitants (Hilhorst et al. 2015). These and other instances demonstrate that identity cohesion revives in times of disaster around a sense of place (Grube and Storr 2018).

Inevitably, though, disasters also tear the fabric of social life and weaken the salience of a community identity. This is more likely when community disaster rescue and support, either from the designated authorities (McNulty and Rennick 2013) or through mutual peer support, is perceived as insufficient and unequal (Ntontis et al. 2020). Fritz and Williams (1957) noticed in the 1950s, after observing floods in California, that a socially destructive force emerged a few days or weeks after the disaster, when the immediate feeling of common fate among community peers was replaced by a sense of competition in the process of rebuilding and renewal. Furthermore, loss of possessions, loss of personally important memorabilia, prolonged stays in temporary accommodation, damage to houses, difficulties in claiming insurance compensation, and a loss of social networks (Cox and Perry 2011) can exacerbate the shattering of communities' identity cohesion. This example highlights how perceptions of unequal distribution of compensation resources or relocation needs can shatter communities' identity cohesion (Mayer et al. 2015). We propose: P4 (Fostering Community Identity Salience): The greater the integration of disaster response activities, the more community actors foster their community identity salience.

People living through a disaster response frequently report being part of an "immense expression of 'social capital' and self-organisation that emerged spontaneously in the public responses" (Ross and Carter 2011:1) to meet dire needs, such as search and rescue operations, clean-ups, and offering moral support (Shepherd and Williams 2014). This spontaneous activation of bonds within and between social groups is often impressive (Ross and Carter 2011) and based on the salience of a local community identity (Boe-Lillegraven et al. 2024). When community members identify more with each other, i.e., experience greater community identity salience, they are more likely to give each other informal warnings (Hawkins and Maurer 2010), shelter and supplies, and immediate aid and assistance (Seyb et al. 2019). This happens because community members are more prone to improvise acts of support for other people with whom they identify (Levine et al. 2005). This stimulus of supporting each other based on common identity is particularly strong in relation to place (Aldrich and Meyer 2015), because community members often bond based on a common fate (Drury et al. 2016). For example, survivors of the 2010 earthquake in Chile provided social support to others in need, especially when they identified with them (Drury et al. 2016). Hence, when community members identify with their neighboring peers, they are more likely to collectively engage in emergent response activities.

However, when the community identity is not salient, emergent responses to disasters may not be as widespread and timely. This may happen because group identities in a community might be too geographically spread (Maida 2007) or the multiple group identities in a community may not have shared attributes, preventing community members from relating to each other (Berkes and Ross 2013). The case of the Ninth Ward in New Orleans during Hurricane Katrina exemplifies a place that, while inhabited by tight-knit collective identities, did not show community identity salience at a neighborhood level. In that disaster event, Vietnamese immigrants, bonded by a common identity as migrants from Vietnam, supported each other in evacuating and then relocating back and rebuilding just a year after the flood (Leong et al. 2007, Chamlee-Wright and Storr 2009). While they engaged in remarkably effective emergent action, other inhabitants of the Ninth Ward struggled to do the same, which led many to postpone or cancel their plans to relocate back to the Ninth Ward. As an outcome, although a smaller group within the community was able to cope, the community of the Ninth Ward was not able to trigger sufficient emergent responses to collectively cope and recover. Based on these examples, we posit that within a city, neighborhood, or village affected by similar disasters or mass emergency plans, greater community identity salience likely mobilizes engagement in emergent responses that meet community members' needs more broadly. We propose: P5 (Emergent Action): The stronger the community identity salience, the more community members participate in emergent actions in a disaster response.

Furthermore, we argue that community identity salience strongly shapes community disaster frames. Disaster frames are not immutable but fundamentally molded by local social processes (Adger et al. 2009) through pre-existing community dynamics (Boersma et al. 2021). For example, when facing droughts and other extreme weather events, New Zealand's Northland farming region is deeply reliant on the networked adaptive capacities in local communities: "The worst thing you can do is stay on the farm and just ponder what's going on [during a drought]. The best thing you can do is just go out and talk to other farmers," because "by talking to other farmers you know that you're gonna be, you're all in the same boat, you're all singing from the same page" (Tisch and Galbreath 2018:1203). In the occurrence of an eventual disaster, the identity-frames link helps explain why some communities "have a deeper set of shared frameworks or mental models upon which actors draw to create common definitions of a situation" (Marquis and Battilana 2009:16). Hence, greater community identity salience, in this case, fostered by the feeling

of "being in the same boat" as a form of common fate in relation to their place and professional identity, aligns community members' disaster frames. Therefore, we propose: P6 (Frame Convergence): The stronger the community identity salience, the more convergent community actors' disaster frames become.

Memory work in resilience building

Building a community's capacity to deal with disaster does not happen automatically but requires deliberate memory work. Disasters are not just remembered or forgotten: community members reflect on what happened to them (Arora 2018) and then actively shape and imprint their disaster memory in heterogeneous ways (Kofman Bos et al. 2005). Halbwachs' (2020) work on collective memory clearly shows that people and social groups attach meaning to spaces and objects that define their own place-based communities, and that this attachment has a political dimension. After a disaster, what about the traumatic event is collectively remembered has powerful implications on the future co-existence of the people and social groups that inhabit a place-based community (Goggins 2024).

In the creation of sacred spaces, memorials, and monuments, people collectively engage in memory-making, that is, they decide what to remember and what to forget (Moulton 2015). Therefore, memory-making processes require collective agency, as they entail the imaginative generation of possible future trajectories of action (Emirbayer and Mische 1998). For example, a community in Joplin, Missouri, actively created a community narrative based on individual stories of the destructive 2011 tornado that stressed themes of overcoming adversity, heroism, and compassion instead of just experiencing a traumatic event together, thereby shaping the community's post-disaster identity (Dinger et al. 2020). As memory gets recalled, performed, and inscribed, it becomes an integral part of the local identity (Moulton 2015).

Memory-making occurs at the community scale but may be enacted by community sub-groups at the same time. For instance, because of the lengthy clean-up and unsafe work conditions after the 2015 floods in Chennai, India, janitorial work performed by the Dalit ("the untouchables") became socially stigmatized as dirty work. To preserve their dignity and memory of the trauma, the Dalit janitors worked hard to establish a counter-narrative through storytelling, a counternarrative of remembrance that dirty work is what saves and restores community lives during and after a disaster (Mahalingam et al. 2019). In a completely different context, such as the post-disaster period of COVID-19 in U.S. communities, sub-groups employed memory work "to assert rights to restitution and accountability for the policy failures that led to profound racial and socioeconomic disparities in risks of infection, severe illness, and death" (Goggins 2024:1241). This shows that certain actors purposively shape the community's deep learning and adaptation process by using memory work to become "entrepreneurs of identity" (Haslam and Reicher 2007). We argue: P7 (Identity Work): Community memory work moderates how disaster experiences shape community identity salience.

Finally, memory-making work affects how community members will adapt their perception of future disasters. For example, a community's disaster memory of the local floods from 1974 was reconstructed and effectively enacted during the Queensland flooding in 2011 (McKinnon 2019). The community was able to draw on a local memoryscape that was maintained through storytelling, memorials, and local celebrations (Moulton 2015). In this case, actors were able to recall and perform lessons learned based on the continuous memory-making work. However, collective forgetting and remembering is often fought as a discursive and symbolic battle between an elite-level narrative and a grassroots memory (Kofman Bus et al. 2005). Differences in media reporting, personal narratives, and built memories can lead to "sanitized" memories of successful navigation and a form of forgetting (McKinnon 2019). Thus, memory-making takes place as a political "processing" of an adverse community experience that keeps shaping the local community identity and disaster frames (Kofman Bos et al. 2005).

Therefore, convergent disaster frames come with a higher risk of collectively applying "wrong frames" to future disasters. Tight-knit communities bound together by their common place (e.g., islands, mountain valleys) or professional (e.g., farming, fishing) identity may face this risk. For example, based on their recent history of past disasters, communities on Mauritius Island developed converging frames that cyclones are not too destructive, and might even be enjoyable (Walshe et al. 2020). Yet, research shows that this widespread perception might be biased because recent cyclones only passed near the island without directly hitting it. This bias might be particularly dangerous for the population because material cues from the cyclone's eye, the relatively calm physical center of a cyclone, might be collectively misinterpreted as the end of the cyclone emergency (Walshe et al. 2020). Other communities at risk of applying misguided disaster frames are communities over-reliant on techno-centric disaster early warning systems (Schenk 2015) or man-made disaster prevention measures, such as the flood-preventing dam in Queensland (McKinnon 2019). We propose: P8 (Frame Renewal): Community memory work moderates how disaster experiences mold future disaster frames in a community.

On a final note, it is important to point out that disaster memory work has a dark side: the strategic manipulation of disaster memories as a form of resistance in processes of community resilience. For example, during and after the first COVID-19 wave, politicians representing xenophobic and racist sentiments across continents instilled the idea that migrants, as well as some ethnic minority groups, might facilitate the spreading of the virus (Elias et al. 2021). This form of identity work is based on political, ethnic, or religious identity and not based on place-based community identity, which we referred to throughout this article. Although extreme, these cases show that disaster responses, disaster frames, and identity cohesion related to place might become controversial and highly politicized topics.

DISCUSSION AND CONCLUSION

This study develops a community resilience building framework that explains the role of social-cultural factors, i.e., community members' identity salience, disaster frames, and memory work, in preparing responses to future plausible disasters. This framework emphasizes the role that communities and their members can play by building shared identities connected to place, converging their disaster frames and engaging in memory work that molds past disaster experiences. Such a resilience building perspective, which emphasizes the interconnected role of these social-cultural factors, complements and adds to previous research that stresses effective disaster responses to be highly

contextual (Uddin et al. 2020). Although recent studies highlight how social-cultural factors play a role during disaster responses from a more reactive resilience perspective (cf. Carmen et al. 2022), this framework suggests that these factors can, and perhaps should, be cultivated before disasters strike communities. Hence, this paper advances community resilience research by connecting place-based disasters to social identity dynamics and sensemaking processes of people co-inhabiting a place (Brown et al. 2019, Boe-Lillegraven et al. 2024).

Through eight propositions, the community resilience building framework explains how social-cultural factors shape either an adaptation cycle, a transformation cycle, or both. An adaptation cycle gets activated when, after disasters, community members converge in their perceptions and understandings of the disaster (i.e., disaster frames); this convergence of disaster frames, in turn, helps community members to establish more scripted action in preparation for future plausible disasters. Conversely, transformation cycles of community resilience are triggered when, after disasters, members build a stronger community identity salience thanks to the solidarity and mutual support (i.e., emergent action) that they shared when the disaster hit. However, when emergent action does not take place during disasters, this transformation cycle may unfold in an opposing manner, shattering community identity salience. In turn, depending on whether members' identity salience strengthens or weakens after disasters, emergent action in response to future plausible disasters may become more or less likely. It is worth noting that adaptation and transformation cycles can be further steered by community members' memory work, which intentionally endeavors to remember, forget, or reshape the memory from past disaster experiences.

By shedding light on several social-cultural factors that support either adaptive or transformative cycles of community resilience building, this framework contributes to both the social-ecological resilience and the community evolution literature. On the one hand, this paper delves into social-cultural dynamics that inform a resourceful and integrated local disaster response to all kinds of disruptions of social-ecological systems (Brown 2015, Uddin et al. 2020, Walker et al. 2023). On the other hand, the paper adds to the community evolution literature (Fazey et al. 2010, Carmen et al. 2022, Boe-Lillegraven et al. 2024) by emphasizing identity work in how communities regenerate and adapt their worldviews and frames. Moreover, we argue that community resilience supports individuals, organizations, and societies in adapting and transforming their social-cultural dynamics based on (i) how they frame and remember disasters, and (ii) how they reflect on their identity as human collectives.

Although this framework delved deep into some key social-cultural factors for community resilience building, we are aware that, in a variety of contexts around the world, several other social-cultural factors may also impact resilience building. For example, social equity, or lack thereof, may represent an underlying critical factor that prevents community members from converging in their disaster frames and building community identity salience. The social distance, as well as the disparity in economic means, among community members may simply be too wide for a community to prepare for future plausible disasters. What is worse, social-economic differences may often strengthen other "identity fault lines" (Chrobot-Mason et al. 2009) based on religious, ethnic, or national identities inhabiting a place, thereby perpetuating a status quo of disidentification across social groups in a community. In the case of the post-disaster adaptation process following Hurricane Katrina, for example, the social-economic gap between different ethnic and religious groups helped shatter the collective identity and disaster memory of several neighborhoods (Chamlee-Wright and Storr 2009).

Therefore, we recommend future research on proactively building community resilience to connect social-cultural factors such as disaster framing, identity building, and memory work with underlying power and equity dynamics (Brown 2015). In doing so, future research could dig deeply into the social equity conditions that may support or hamper proactive community resilience building efforts. Future research could also test and refine the integrated framework by studying stakeholder perceptions in disaster-prone community contexts already prior to a potential disaster (see Cheney et al. 2024). Moreover, empirical research that uses contextualized indicators (Baird et al. 2024) and focuses on the non-linear adaptation and even transformation of different (marginalized) community groups over multiple time intervals is needed to link short- and long-term community resilience processes (cf. Spoon et al. 2023). From a methodological perspective, the propositions, as well as external factors moderating the relationships (e.g., international networks and support, broader institutional set-up, polycentric governance), could be tested through comparative case studies or quantitative research. We also advocate for empirical studies that connect a social identity perspective to power dynamics and the role of agency (and other social-cultural factors) that shape any adaptation and transformation process (Morgan et al. 2024).

Finally, our framework has several policy and practice implications both for agents within and outside the respective community. Within a community, municipal agencies, civil society organizations, and civic associations, among others, may implement intentional activities to support a combination of disaster frame convergence and identity salience strengthening (and raise awareness among community members). This could be achieved by leveraging memory work in ways that trigger, in desirable forms for the community, adaptive and transformative cycles of community resilience. Outside the community, government institutions and private actors may support a similar process of framing past disasters, remembering them, and crafting the community identity in relation to the broader region. As such, our paper helps explain how and why some communities are better prepared to cope with and adapt to disasters than others.

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Data Availability:

Data/code sharing is not applicable to this article because no primary data and code were analyzed in this study.

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