Victim entrepreneurs doing well by doing good: Venture creation and well-being in the aftermath of a resource shock

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Venture creation generates value in a variety of forms both for the entrepreneur him or herself and the venture's stakeholders. Recent research explores entrepreneurial action as a vehicle for personal transformation and development for the individual, especially as it pertains to overcoming adversity. We build on this emerging literature by exploring victims creating new ventures in the aftermath of a disaster event, where widespread adversity threatens entire communities. Following the disaster, some victim resources are destroyed (e.g., property) while others remain (e.g., human capital) at varying levels. We build on organizational emergence and conservation of resources theories and use structural equation modeling to test a victim entrepreneur model of functioning through the creation of ventures to alleviate others' suffering. We find that venture creation mediates the positive relationship between human capital and functioning and that for those who do not create ventures, human capital is negatively related to functioning—highlighting the important role of venture creation for the victim-actor following a disaster event. Implications of these findings for literature on venture creation and responses to adversity are discussed.

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1. Introduction

"Individuals and communities are seldom rendered helpless. Rather, they have a phoenix-like tendency to reemerge from the ashes of disaster and apparent defeat. Culture and survival depend on this" (Hobfoll, 2012: 230).

"When the Black Saturday [February, 7, 2009] fire disaster destroyed 3 km of my property, I know what it's like to be left alone and to be deserted when you've got ashes and charcoal and misery … I thought well, I know how to organize people and I know how to plan and prepare, and I don't need to let other people suffer what I did …. I put my life aside so that I could rebuild other people's lives, and I think that's a great choice to make."

[Kevin Butler, Entrepreneur following Black Saturday]

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New ventures are created as value-generating mechanisms for founders and other stakeholders (Fiol and Romanelli, 2012; Stevenson and Jarillo, 1990), where value typically refers to economic profit (Khanna and Rivkin, 2006; Kirzner, 1997) but can also include environmental improvements (Cohen and Winn, 2007; Dean and McMullen, 2007) and/or social and community benefits (Austin et al., 2006; Peredo and Chrisman, 2006). Venture creation refers to arranging resources and organizational structures in a novel way (de novo or de alio) in pursuing opportunities (Stevenson and Jarillo, 1990; see also Gartner, 1985; Katz and Gartner, 1988). In addition, scholars have sought to explain the psychological consequences of venture creation for the entrepreneur him- or herself (Herron and Sapienza, 1992; Morris et al., 2012) as this helps explain the broader implications and motivations of engaging in venture creation. Generally, the focus of this research is psychological motivations for an entrepreneurial career, including the personal satisfaction derived from self-employment (Gimeno et al., 1997) and autonomy in life and career decisions (Smith and Miner, 1983).

Beyond career-motivation research, a small number of studies have explored the transformational potential of venture creation for the entrepreneur. Recently, Powell and Baker (2014) found that ventures functioned as a vehicle for identity transformation in the context of persistent adversity during the Great Recession. In particular, they found that entrepreneurs hold multiple identities, and that while facing a crisis, certain aspects of that identity increased in salience whereas others did not. This is consistent with other recent work that explore changes in identity after a traumatic injury (Haynie and Shepherd, 2011), where entrepreneur-identity, providing a pathway to change. Consistent with these studies is the emerging literature on prosocial (Miller et al., 2012) or compassion motivated (Dutton et al., 2006; Shepherd and Williams, 2014) ventures, which have extended the scope of the traditional enterprise (Rynes et al., 2012). While these themes are gradually reshaping traditional perspectives of entrepreneurial venturing and value creation, there is a considerable gap in our knowledge of how venturing to help others impacts the entrepreneur him- or herself. We address this gap by exploring venture creation by victims of a natural disaster and by asking the following question: how does venture creation to alleviate the suffering of others impact those entrepreneurs (and non-entrepreneurs) who are also victims (i.e., are also suffering)?

To address the above research question, we draw upon the conservation of resources (COR) motivational theory of stress response (Hobfoll, 1989, 2002, 2012), the entrepreneurship literature on organizational emergence and venture creation, and the extreme context of a natural disaster to develop a victim entrepreneur model of functioning through the creation of ventures to alleviate others’ suffering. We test our model using structural equation modeling (SEM) and, in doing so, offer three primary contributions.

First, individuals can create ventures to help others in non-financial ways, including providing social benefits (Dacin et al., 2011), sustaining communities (Peredo and Chrisman, 2006), and reducing environmental threats (Dean and McMullen, 2007). Similarly, research has suggested that venture creation can benefit entrepreneurs in terms of autonomy (Smith and Miner, 1983) and control of life path (Oyserman et al., 2002). Despite the risk that venturing may further exacerbate one’s suffering following an environmental jolt (i.e., should the venture fail or struggle), we theorize and find that victim-initiated new venture creation to help others in the aftermath of a natural disaster results in high post-disaster functioning for the entrepreneur. In other words, venture creation itself can be transformational for the entrepreneur, providing the context for success from the very setting that was threatening. This extends our understanding of what forms of value are derived from new venture creation.

Second, when new ventures are created, a stock of resources (i.e., human capital) appears to facilitate effective response to setbacks, failures, or contingencies (Dimov, 2010); surprises (Delmar and Shane, 2006); and disasters (Shepherd and Williams, 2014) by helping individuals envision new ways to access and use physical resources to create and grow new ventures (Delmar and Shane, 2006; Dimov, 2010). We theorize and find that in the context of a natural disaster, human capital is like a double-edged sword. Namely, those with high levels of human capital who invest that capital in creating new ventures function well in the post-disaster environment. In contrast, those who have high levels of human capital and, rather than drawing upon it for action, engage in resource conservation and protective actions by not creating ventures function least well in the post-disaster environment. This theorizing and finding enhances our understanding of how individuals extract value from human-resource stocks, highlighting the importance of action, specifically, in this case, the creation of new ventures. Similarly, it answers calls to better explain how resources such as “knowledge or skills could degrade if they are not utilized … [which is] an area of research that has not been adequately explored but has important implications for how individuals approach conservation of their resources” and how this influences well-being (Halbesleben et al., 2014, p. 1346).

Finally, when facing obstacles, fatigue, or even crises, individuals are often encouraged to avoid challenging work activities and preserve remaining resources to restore normal functioning (Hobfoll, 2002; Trougakos and Hideg, 2009). Similarly, research on interventions for mass crises, such as natural disaster responses, has often assumed that nearly all victims of a disaster require immediate respite to preserve remaining resources from further loss (Hobfoll, 2002). However, recent research has suggested that despite experiencing “distress and disease” or other traumas, many individuals are resilient in that they “remain committed and absorbed in their life … [which is] fascinating and something we know little about … [and is] nothing less than the next horizon for research on stress” (Hobfoll, 2011, p. 128). We theorize and find that in the context of a widespread crisis event, individuals who are victims of the disaster and apply their existing resources by engaging in the creative and intensely demanding activity of venture creation are more likely to experience positive functioning outcomes. This finding enhances our understanding of responses to extreme stressors and the activities that influence positive outcomes for victims. In addition, this finding extends literature on the types of activities that are energizing by showing that acts of helping others through venture creation positively influence the entrepreneur’s functioning.
2. Theoretical development

2.1. Context: Black Saturday natural disaster

Natural disasters are discontinuous events that alter the value and structure of an individual's existing resource stocks (Meyer et al., 1990), which could subsequently impact his or her functioning. In this study, we explore our research question in the context of the Black Saturday bushfire disaster, which occurred on February 7, 2009, in Victoria, Australia. At the peak of Black Saturday, more than 400 fires burned across the state of Victoria, which claimed the lives of 173 people, destroyed thousands of homes and properties, displaced thousands of individuals, and forever altered the lives and livelihoods of many Australians (Teague et al., 2010). Given the loss of human life and wide impact of the destruction, Black Saturday is considered Australia's worst-ever natural disaster. However, despite the losses of Black Saturday, impacted communities “showed they are capable of deeds of great courage and compassion. Although communities were physically destroyed, some members displayed ingenuity, strength and resolve in the face of this calamity” (Teague et al., 2010, p. vii). Previous research has drawn upon COR theory to understand individual functioning following major potentially traumatic stressors like disasters (Benight et al., 1999; Bonanno et al., 2007), to which we now turn.

2.2. Conservation of resources theory and overarching model

COR theory explains how individuals respond to threats by either investing or protecting resources (Hobfoll, 1989) and has been used to predict stress response outcomes following disasters (Bonanno et al., 2007; Kaiser et al., 1996). A key tenet of COR theory is that people strive to obtain, retain, and protect things that are universally valued (i.e., health, well-being, self-preservation, and a positive sense of self (Hobfoll, 2012: 228), and this influences regulation of the self and the ways individuals organize, behave (Hobfoll, 2012), and even thrive in response to stress rather than merely not succumbing to stress (Hobfoll, 2011; see also Bonanno et al., 2010). Disaster events present “objective elements of threat and loss” to what individuals value (Hobfoll 2012, p. 228)—such as the loss of a home, loss of employment, and so on—as well as the perceived value of what they have remaining (e.g., ineffectiveness of prior experience to the disaster context) (Bonanno et al., 2007). The loss (through destruction or devaluation) of something valued can result in psychological dysfunction (Bonanno et al., 2007). A resilient response—that is, the ability to retain functioning in one’s professional and personal life despite substantial adversity—counteracts or complements the powerful and sudden impact of such loss(es) (Hobfoll, 2011).

In COR theory, resources are things that are centrally valued or means of obtaining that which is valued (Hobfoll, 2011) and are broadly defined as “anything perceived by the individual to help attain his or her goals” (Halbesleben et al., 2014). More specifically, resources are classified as object (e.g., transportation, shelter, material goods, etc.), condition (e.g., employment, marriage, children, etc.), personal (e.g., value developed through education, work experience, skill mastery, other experience), and energy (e.g., credit, money, etc.) resources (see Hobfoll, 2011 for a complete typology). Successful resource deployment occurs not only by resource possession, but when one “allocate[s] those resources to maximize their fit with their environment” (Halbesleben et al. 2014, p. 1339, emphasis added).

When a stressful event occurs, COR theory posits that individuals will likely either consume or lose some of these resources, thereby impacting their sensitivity to subsequent stressors (Hobfoll, 2012). To protect against, recover from, and gain resources, individuals must engage in resource investment. Resource investment is a proactive posture that promotes resource development. When an individual faces losses associated with a threat, resource investment builds on existing resources to replenish or enhance resource stocks (Benight et al., 1999). Generally, those with greater resources are more capable of orchestrating resource replenishment and gain in the face of loss. In contrast, resource protection is a loss-aversion reactive posture that seeks to protect the individual from further losses (Hobfoll, 1989, 2002) and is manifest when individuals experience threats of and/or actual loss (Halbesleben et al., 2014). While resource protection provides benefits in terms of short-term coping (e.g., “grief work” and or restorative coping: exploring the lost aspects of one’s identity and cognitively confronting the reality of loss (Stroebe and Schut, 2010)), it also results in the degradation of “resources over time if they are not adequately sustained through reciprocal investment of resources” (Halbesleben et al. 2014, p. 1346; Bickerton et al., 2014).

While resource loss, especially in a disaster context, is disproportionately more salient than resource gain (usually due to the speed and sudden impact of loss), there is a paradox: the salience of resource gain increases under conditions of resource loss (Wells et al., 1999). That is, as individuals experience loss and find ways to generate gains, the “resource gain processes accelerate in speed and increase in magnitude of their effect. This paradoxical increase in resource gain saliency is accentuated during traumatic situations” (Hobfoll 2011, p. 132). Identifying factors that trigger resource gains despite losses is critical as they offer the basis for a better understanding of the processes and factors influencing resilience and well-being in response to disasters (Hobfoll, 2011). Similarly, identifying how individuals combine or build pools of resources (i.e., the way they support, foster, and enrich resources) (Hobfoll, 2012) is likely an important factor influencing post-disaster functioning.

We draw upon COR theory (Hobfoll, 1989, 2002) in building a victim entrepreneur model of functioning through the creation of ventures to alleviate others’ suffering (Fig. 1, see also Appendix I, II and IV for representative qualitative evidence for the theoretical model). In our model, we explore how, at the time of a widespread threat that generated individual losses, those with more resources to deploy (and thereby the greatest opportunity to replenish resources) varied in their loss response (investment versus protection) and how these differences influenced post-disaster functioning. In the upper half of Fig. 1, we offer
the hypothesized relationships, and in the lower half of the figure, we illustrate the major resources losses and alternate actions as controls.

2.3. Post-disaster functioning

Post-disaster functioning refers to adjustment following a discrete negative shock (e.g., disaster) (Bonanno, 2004) and includes three dimensions: behavioral, emotional, and assumptive functioning. Behavioral functioning refers to maintaining concentration on tasks and demonstrating competence in interacting with others (Bonanno, 2004; Hobfoll et al., 2011). Evidence of high behavioral functioning includes developing and enacting personal plans for the future (Bonanno et al., 2005), interacting appropriately and effectively with others (Bonanno, 2004), and participating constructively in activities (Bonanno et al., 2005) that show evidence of and ability to direct attention and focus (Scheier & Carver, 1992; Coifman et al., 2007).

Emotional functioning refers to individuals' ability to experience positive emotions and regulate emotional responses (Bonanno and Jost, 2006; Folkman and Moskowitz, 2000). Evidence of high emotional functioning includes expressing positive emotions in the presence of negative emotions (Bonanno, 2004), which helps individuals express feelings of grief, anxiety, or distress without succumbing to those emotions entirely (Bonanno et al., 2004). Finally, assumptive functioning refers to believing that the environment in which one lives is benevolent and meaningful and that one is capable of good and positive acts (Beder, 2005; Janoff-Bulman, 1992). Traumatic events threaten to “shatter” people's worldview, challenging individuals' basic and fundamentally held assumptions (Janoff-Bulman, 1992). Evidence of assumptive functioning includes maintaining a balanced view (i.e., contains good and bad) of the world, oneself, and others (Bonanno et al., 2007). We model each aspect of post-disaster functioning in one second-order construct because the sub-categories of functioning theoretically fit in the broader construct; we do not theorize about differences across sub-constructs.

2.4. Pre-disaster resources and post-disaster functioning

Human capital is a critical resource that provides individuals opportunities for gain (Becker, 1964). For example, De Cuyper et al. (2012) recently drew upon COR theory to explore how investments in human capital (defined as general experience and specific skills) influenced responses to adversity at work, as measured by burnout rates. Consistent with COR theory, individuals develop human capital to invest in future possibilities or protect against possible losses by preserving what they “centrally value” (Hobfoll, 2011, p. 228). Pursuing human capital as a resource can help generate gains (e.g., in salary, future opportunities) and can
also help minimize potential losses (e.g., layoffs, getting fired). Human capital includes skills and knowledge that individuals acquire through formal training as well as other types of experience (Becker, 1964).

While human capital can potentially enhance or maintain functioning, as is the case with other resources (Halbesleben et al., 2014), its effectiveness depends in part on the context in which the individual’s human capital is to be applied (Shamsie and Mannor, 2013). That is, to extract value from their human capital, individuals need to recognize the match between their skillset and contextual demands (De Cuyper et al., 2012; Shane, 2003). We know from the entrepreneurship literature that individuals are heterogeneous in how they perceive the external environment: where some see threats others see opportunities (Dutton and Jackson, 1987; Jackson and Dutton, 1988). Part of the process of opportunity identification involves matching one’s human capital with the nature of the opportunity (Haynie et al., 2009). While the purpose of this paper is not to explain why some individuals with high human capital perceive a match between their resources and opportunities and others do not (for a review, see Shepherd et al., 2015), we investigate how differences in individuals’ resource posture (protection versus investment) influence post-disaster functioning.

Building on COR theory, we theorize that individuals who are high in human capital but fail to engage in the resource-investment activity of venture creation following a disaster are more defensive in how they manage their resources. That is, they take “steps to protect their remaining resources” (Halbesleben et al., 2014, p. 1337) and, in doing so, experience lower functioning. We selected three types of human capital to investigate as they have been shown to be highly influential in the venture-creation process (Davidsson and Honig, 2003): founding experience, education, and work experience. Founding experience refers to prior experience in creating and subsequently managing a new business (Ucbasaran et al., 2008). Education refers to the number of years of formal training one has received. Work experience refers to the number of years an individual has worked full time. We theorize three primary reasons why individuals who are high in human capital but fail to engage in venture creation are likely to experience lower post-disaster functioning.

First, when individuals respond to loss by seeking to protect (rather than invest) remaining resources, they focus on loss rather than on identifying and mobilizing resources. This resource-protection posture is understandable given the primacy of loss events (Hobfoll, 2001). Disasters impose proximal and distal exposure to loss: one might lose his or her home, have property damaged, lost a loved one, etc. (i.e., proximal exposure (Bonanno et al., 2010)); similarly, one might experience loss by seeing community members, friends, or family members lose the same resources (i.e., distal exposure (Bonanno et al., 2010)). As some individuals experience the acute stress of a disaster, they adopt a “protective response to [the] demanding environmental circumstances” (Bonanno et al., 2010, p. 8). This could include coping mechanisms, such as withdrawing from one’s daily activities, focusing on only one’s immediate family unit, engaging in “grief work” (Stroebe and Schut, 2010), and engaging in emotion-based coping (Bonanno et al., 2010). We found evidence of these behaviors as well as resource-protection activities, including preserving property from additional damage (from ongoing fires), pursuing insurance claims to replace financial losses, seeking mental health support, and defending oneself from onlookers and outsiders.

Although a resource-protection posture can provide short-term coping benefits, it can lead to longer-term disruption to individual health (McEwen and Stellar, 1993) and well-being (Bonanno et al., 2010). More specifically, while a protective posture can help reduce the extent of resource loss (e.g., negative emotion intensity, grief, anxiety), these types of coping activities still consume resources (e.g., time, social support from family, energy) that could otherwise have been invested (Kaniasty and Norris, 1995). That is, after the initial wave of support individuals might receive from family, friends, and others in the community to help with protective forms of coping, the individuals are left vulnerable as support diminishes over time (Hobfoll, 2002; Kaniasty and Norris, 1995; Norris and Kaniasty, 1996). While it is possible to reverse resource-loss trajectories by shifting to an investment approach, this can be difficult (Hobfoll, 2002).

Second, perceptions of resource availability and value fluctuate depending on life circumstances (Hobfoll, 1989). Therefore, some individuals may have high levels of human capital but, in the immediate aftermath of the disaster, fail to see connections between that experience and possible resource-investment opportunities. This could not only result in a resource-protection posture but may also introduce regret at later stages of recovery for not taking action, leaving them to wonder what might have been had they made different decisions with their resources (Epstude and Roese, 2008; Kahneman, 1995). Indeed, it is quite common for individuals to engage in this type of counter-factual thinking when reflecting on surprising events (Epstude and Roese, 2008; Kahneman et al., 1982), such as disasters (Sheikh and McNamara, 2014). Such counter-factual thoughts can generate painful negative emotions associated with regret as individuals seek to attribute causes and responsibility for negative events (Bonanno et al., 2010; Epstude and Roese, 2008), which could be especially the case as individuals reflect on and regret the missed opportunity to help others given their high human-capital endowments. This reasoning is consistent with research finding that entrepreneurs expressed regret and negative emotions when failing to pursue opportunities in which they believed they could have succeeded (Baron, 1998, 2000; Gartner, 1985).

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1 This is consistent with the typology of resources systematically developed and validated by Hobfoll and Lilly (1993). In this typology, they identify 74 resources (seen as comprehensive but not all inclusive) that have been shown to predict psychological distress (Ironson et al., 1997). Drawing upon this typology, they asked individuals to assess the extent of loss and threat of loss for each resource. Several resources in the typology relate directly to extant conceptualizations of human capital (De Cuyper et al., 2012), including “status or seniority at work [i.e., work experience]; stable employment; role as a leader; advancement in education or job training.”

2 This argument is consistent with other papers arguing for negative consequences associated with high levels of resources, or “too much of a good thing.” Examples of resources that can have positive and negative impacts depending on the environmental context include need for control (Janoff-Bulman and Brickman, 1982); the pursuit of extrinsic rewards (Ryan & Deci, 2000); status-related variables, such as income and marital status (Diener et al., 1999); and the pursuit of resources at the cost of sacrificing resources in other domains (Schönplug, 1985).
Finally, beyond experiencing regret for not applying a resource stock, those who possess higher human capital, which is generally considered a positive asset under normal conditions, can have this resource “backfire in circumstances of extreme stress” (Hobfoll, 2002, p. 316). That is, the disaster creates a context in which individuals experience direct losses (e.g., property, sense of community normalcy) but also a context in which they may question the perceived value of other resources, such as human capital, creating a gap between their expectations and reality (Janoff-Bulman and Brickman, 1982). We found evidence of this in accounts from several individuals who were disappointed in the lack of fit between prior experiences and the current environment, leading them to conserve remaining resources and abandon prior skills and trades (e.g., cafe owner selling off cafe, farmer shipping off cattle, small business [dog breeder] temporarily closing down). Relative to those with low human capital, individuals with high human capital face the prospect of a larger gap between expectations and reality following a disaster event, which negatively influences functioning (Hobfoll, 2002). The realization of this gap between expectations and reality makes the failure to invest human capital more salient, resulting in frustration, regret, and a focus on loss resource protection (e.g., missed opportunities to invest and generate gains). In this sense, perceiving that resources no longer apply to the new environment is another form of loss. Therefore, the mere possession of resources is important but not sufficient for post-disaster functioning. Based on the reasoning above, we hypothesize the following:

**Hypothesis 1.** The path between human capital—namely (a) founding experience, (b) education, and (c) work experience—and post-disaster functioning is negative when it does not involve investment in venture creation.

### 2.5. Venture creation and post-disaster functioning

Disaster events generate high levels of stress but do not necessarily preclude individuals from engaging in resource-gain activities (Hobfoll et al., 2011). However, to realize resource gains in a disaster context, individuals must identify and sustainably mobilize resources in such a way that losses are replaced or substituted (Ironson et al., 1997). That is, to recover from a stressful event, individuals need to find ways to either replace resources (e.g., home, social relationships) that were lost or substitute for those losses with other resources (e.g., new communities, relationships, different roles) (Hobfoll, 2002). Mobilizing resources toward gains involves recognizing opportunities and choosing to allocate and invest resources to exploit them (Hobfoll, 2002). As it relates to individuals’ functioning, resource gains must be great enough to overcome the “potency” of resource losses (Hobfoll, 2012). When achieved, these gains increase in salience and “elicit positive expectancy and hope, and reinforce and encourage further goal-directed efforts” (Hobfoll, 2011, p. 132). We propose that venture creation as a resource-mobilization activity can perpetuate gains and positively influence individuals’ post-disaster functioning.

Venture creation occurs when an individual organizes others to “pursue opportunities without regard to resources they currently control” (Stevenson and Jarillo, 1990, p. 23). Opportunities are broadly understood as future situations that are both desirable and feasible (Katz and Gartner, 1988; Stevenson and Jarillo, 1990). Consistent with this literature on new ventures, ventures created to alleviate suffering can be de novo—a new start-up entrant—or de alio—a diversifying entrant from another industry (for a review, see Shepherd and Williams, 2014). While other post-disaster actions could potentially generate gains (e.g., short-term volunteering, government lobbying for payments, self-help), we argue that venture creation to alleviate others’ suffering is an important way disaster victims deal with adversity (consistent with Powell and Baker, 2014) and is therefore likely to provide a more sustainable path to post-disaster functioning.

First, in the immediate aftermath of a disaster, victims who create ventures focus their attention on future-oriented problems and solutions, which requires sustained attention and subsequent action (Shepherd and Williams, 2014). That is, actions are organized, purpose driven, and focused on “assembling resources and organizational structures into sequences that generate a sensible outcome” (Weick, 1979, p. 3), and they culminate in the creation of a new independent entity (Gartner, 1985). When a solution is deemed desirable and feasible (Stevenson and Jarillo, 1990), the venture creator defines and executes a series of actions, which again requires attention and other resources to be invested (Auto et al., 2013). Therefore, while resource investments under disaster conditions are difficult (Hobfoll, 2011), as individuals invest in and gain resources for venturing, they are “in a better position to invest and gain additional resources” (Halbesleben et al., 2014, p. 1336), which likely positively influences post-disaster functioning.

In addition, and most importantly, many post-disaster new ventures are designed with a “higher purpose” (i.e., helping others) (Shepherd and Williams, 2014) in mind, which influences the salience of a positive future-oriented identity component that is fulfilling (Dacin et al., 2011; Lilius, 2012). This stands in contrast to those who do not act and who, as a result, may experience regret or guilt for failing to identify and/or act on an opportunity. For those who create ventures, the disaster does not appear to lead to dysfunction; rather, it unleashes the prosocial attributes in the individual. This is consistent with research on prosocial motivation (Grant and Sonnentag, 2010), which suggests that helping others can compensate for negative events, such as poor evaluations at work (Grant and Sonnentag, 2010; see also Grant, 2008; Grant and Campbell, 2007; Sonnentag and Grant, 2012). The experiences associated with prosocial action can compensate for resource losses (consistent with Lilius, 2012), providing the entrepreneur with restorative benefits that are not available through a protective posture.

Second, individuals who invest in venturing are more likely to experience positive emotions. Indeed, venture creation involves creativity (Baker and Nelson, 2005) and construction activities to develop and pursue an opportunity (Stevenson and Jarillo, 1990)—acts that can generate positive emotions, such as satisfaction (Gimeno et al., 1997; Smith and Miner, 1983), enjoyment
(Baker and Nelson, 2005), a sense of empowerment (Powell and Baker, 2014; Oyserman et al., 2002), and renewed commitment (Miller et al., 2012). Creating ventures to alleviate others’ suffering can enhance the entrepreneur’s resilience to adversity, thereby positively influencing his or her post-disaster functioning.

Finally, the pursuit of entrepreneurial ideas by creating a venture inherently pushes individuals to explore and make sense of their surroundings, identify potential challenges or obstacles, and ultimately make assumptions and decisions under uncertainty about their environment (Autio et al., 2013). These acts are resource building in nature and lead to subsequent growth-focused actions. Specifically, creating new ventures can help entrepreneurs find meaning and goodness in the world while also avoiding the decline in resources faced by those who primarily focus on resource protection. Indeed, when interacting with customers, collaborators, and suppliers, venture creators will be (disproportionately to those who do not create ventures) exposed to benevolent individuals seeking to assist in the alleviation of suffering (Marcum et al., 2012). In these interactions, the entrepreneur will coordinate with others to deliver goods or services to those in need (Drabek and McEntire, 2003), thus finding benevolence despite the malevolence of the disaster, which is critical for assumptive functioning (Janoff-Bulman, 1992). Venture creation provides a mechanism for overcoming adversity (Powell and Baker, 2014), through which entrepreneurs can reinterpret their experience of loss (associated with the disaster) as positive (Updegraff and Taylor, 2000), engender a deepened sense of community (Shepherd and Williams, 2014), and reduce doubts about a just world (i.e., the focus on “why me?”) (Janoff-Bulman, 1992), all of which reflect post-disaster functioning.

Similarly, venturing entrepreneurs develop sustainable support from other actors (e.g., aid organizations converging on the disaster area, government entities) (Drabek and McEntire, 2003), allowing for ongoing resource development and investment (Kaniasty and Norris, 1995). Indeed, venture creation helps develop social resources, such as new connections with victims and non-victims (Drabek and McEntire, 2003), including the many individuals who converge on disaster-struck areas to offer help (Marcum et al., 2012). Exposure to a (potentially) diverse and resource-rich set of individuals through the venture-creation process likely enhances entrepreneurs’ post-disaster functioning given the considerable importance of these resources in generating gains following a disaster (Bonanno et al., 2010; Hobfoll, 2011). Based on the reasoning above, we hypothesize the following:

Hypothesis 2. The path between venture creation and post-disaster functioning is positive.

2.6. Human capital, venture creation, and post-disaster functioning

Recent entrepreneurship research has drawn upon COR theory to explore how individuals recognize value in resources under conditions of uncertainty (Lanivich, in press). Such value recognition is a foundational concept in venture-creation and entrepreneurship scholarship (Bhave, 1994; Shane, 2003; Shaver and Scott, 1991). The value of human capital in this context is likely reflected in how individuals use their human capital in response to the disaster (consistent with Lanivich, in press)—that is, individuals can either draw upon it to engage in a resource-investment posture or ignore and/or devalue it by engaging in a defensive resource-protection posture (Hobfoll, 1989, 2011). This is consistent with COR theory, which suggests that “resource caravans”—combinations of resources and/or actions—provide the conditions that foster resource growth (as opposed to one resource or set of resources alone) (Hobfoll, 2012, p. 229).

Research has shown that human capital can be influential in recognizing and exploiting entrepreneurial opportunities, including the creation of new ventures (Davidsson and Honig, 2003). Individuals are heterogeneous in resource endowments, and these differences can influence opportunity beliefs (McMullen & Shepherd, 2006; Shane, 2003). While we do not explain differences in why some individuals act on potential opportunities while others do not (for a discussion see Dimov, 2010; Grégoire et al., 2010; Shepherd et al., 2007), we theorize that those with higher levels of human capital are more likely to create ventures and experience more positive post-disaster functioning from doing so.

2.6.1. Founding experience

Individuals with prior experience founding and managing an entrepreneurial firm know what it means to start a venture, including having a holistic understanding of the firm-creation task (Dimov, 2010). This perspective can better position an individual for recognizing more opportunities as well as for understanding the complexities of opportunity exploitation (Ucbasaran et al., 2008). Resource stocks are useful to individuals in the aftermath of a disaster but only inasmuch as individuals perceive there to be an appropriate fit between the resources and their context (Halbesleben et al., 2014; Hobfoll, 2001). When individuals perceive that they have context-relevant resource stocks following a disaster event, they are more likely to be proactive in managing potentially stressful demands from the environment, “relying on themselves and others in new ways ... as old patterns are often found wanting and properly fitting” to the post-disaster environment (Hobfoll, 2001, p. 353). Indeed, people with founding experience who are also victims of a disaster are well positioned to recognize and act on opportunities to help given their knowledge of victim needs (Shepherd and Williams, 2014; Updegraff and Taylor, 2000). Given the need for self-directed action following a resource loss, founding experience is likely an important factor in resource-development activities like venture creation because individuals with this experience are familiar with the venture-creation process and know it requires self-direction. Therefore, using cognitive frameworks derived from prior experience with starting a firm to exploit opportunities, these individuals are well equipped pursue opportunities to alleviate the suffering of disaster victims.
2.6.2 Education

Education is considered a resource that may or may not result in value depending on how an individual’s education relates to a specific context (Reuber and Fischer, 1994). Higher levels of education appear to influence opportunity recognition (Davidsson and Honig, 2003), as education provides access to a broader knowledge base from which to draw (Arenius and De Clercq, 2005). This general knowledge might also be useful in the post-disaster context, in which individuals must apply general principles given the novel and disruptive nature of the environment. Specifically, those with more education are likely to have a higher capacity for complex information processing and engage in boundary-spanning activities (Hambrick and Mason, 1984). These skills likely assist individuals in processing new information in the post-disaster environment by incorporating various stimuli to identify opportunities. Similarly, higher levels of education are likely to be useful in quickly developing a new venture’s operations as more highly educated individuals are likely to have the skills needed to rapidly scale a venture (Unger et al., 2011). Post-disaster ventures frequently emerge from concept to operation almost instantaneously (Shepherd and Williams, 2014), posing substantial cognitive and knowledge demands on their founders. Additional education likely assists individuals in successfully starting a venture to alleviate others’ suffering.

2.6.3 Work experience

Work experience can reflect an individual’s tacit knowledge, or non-explicit knowledge achieved by participating in the workforce (Becker, 1964; Reuber and Fischer, 1994). Prior research has shown that work experience functions as a resource that impacts venture start-up and growth (Bird, 1988; Westhead, 1995). Work experience can provide relevant skills and knowledge in a particular industry that aids in attracting additional resources to draw investors, suppliers, and partners to achieve a venture’s objectives (Brush et al., 2001). Similarly, experienced individuals have knowledge of organizing routines (Becker, 1964; Davidsson and Honig, 2003) that provide them with the structural framework needed to run new ventures. However, it appears that the relationship between work experience and venture creation is influenced by other factors, including how relevant an individual’s industry work experience is to the current environment and how well prior experience aligns with the venture concept (Bird, 1988; Davidsson and Honig, 2003). The challenge for experienced individuals involves identifying elements from their prior experience that best fit the post-disaster environment (Hobfoll, 2001) as prior work experience can lead to blind spots when it is inconsistent with new or different settings (Tripsas and Gavetti, 2000). Possessing experience in the same context or content area of the opportunity is ideal, but it is not necessary for translating experiential resources to a new venture (Brush et al., 2001). Based on the reasoning above, we hypothesize the following:

Hypothesis 3. The path between human capital—namely, (a) founding experience, (b) education, and (c) work experience—and venture creation is positive.

In combining the arguments above, we argue that human capital can have either a positive or negative relationship with post-disaster functioning depending on what individuals do with that resource. If individuals engage in a resource-protection posture to prevent subsequent loss, they are more likely to experience low post-disaster functioning and more so for those with higher human capital. In contrast, for those who apply human capital toward the creation of ventures to alleviate others’ suffering in pursuing a resource-investment posture, we anticipate a positive relationship between human capital and post-disaster functioning. Based on this reasoning, we offer the following:

Hypothesis 4. The path between human capital—namely (a) founding experience, (b) education, and (c) work experience—and post-disaster functioning is positive when it goes through venture creation.

3. Methods

3.1 Research setting and sample

Given our focus on the creation of new ventures and how this influences post-disaster functioning we chose the Black Saturday disaster as the research setting. This setting is ideal in that many ventures emerged as an immediate result of the disaster and there is extensive, rich data available for analysis in the form of publicly available sworn witness statements that were produced by a Royal Commission. Research has shown witness statement data to be “the best available evidence concerning crisis events and crisis sensemaking despite the retrospective and reconstructed nature of the inquiry accounts. They also provide direct evidence of organizational and inter-organizational practices used to interpret [and] manage … crises and to learn from them” (Gephart, 2007, p. 132). Witness statements can be especially reliable as they must be evaluated and verified prior to their release to the public to “expose false or misleading rhetoric, specious claims, and facades that impede” improving crisis response (Gephart, 2007, p. 127) as well as to facilitate learning critical for saving lives and property in the future (Gephart, 2007).

The Royal Commission was organized with the express objective to understand “the reality of the bushfire and its effects on people’s lives” and to “minimize the risk of a similar tragedy occurring in the future. As much as possible those most directly impacted by the fires were given a voice and their stories and views were heard” (Teague et al., 2010, p. vii). To tap into the “reality” of the bushfire, the commission held many community meetings, held hundreds of public hearings, and received 100 witness statements covering each of the impacted fire areas as a critical input to their proceedings (Teague et al., 2010). In these witness statements, victims of Black Saturday described their experience and background as well as the devastation they experienced on...
the day of the fire, their experiences in the immediate aftermath of the disaster (one day to two weeks after the fire), and their behavior following the disaster (up to 14 months post-disaster). Access to the narratives shared in the witness statements enables us to employ proxy measures (i.e., following Boyd et al., 2013) for the variables of interest in this study.

We began with the complete sample of 100 witness statements. However, we removed 11 witness statements that were made by those who responded to and therefore experienced the fire but who lived outside the fire area—they were not victims. In total, our dataset includes statements from 89 individuals impacted by the bushfire, 29% of whom created new ventures. These statements ranged in length from eight to 22 pages of text (single spaced) with an average page length of 14 pages. We employed content analysis to assess, code, and analyze the data (Krippendorff, 2004; Weber, 1990). Content analysis helps address issues common in traditional psychometric analyses (Bartholomew and Smith, 2006) by using a set of procedures to systematically categorize and classify communications, thereby allowing inferences about the context (Krippendorff, 2004; Weber, 1990).

3.2. Content-analysis coding approach

3.2.1. Content-analysis coding

In establishing a reliable analysis, we followed the eight-step approach suggested by Weber (1990). We established our coding unit at the phrase level (Krippendorff, 2004; see also Weber, 1990). We selected this unit as it addresses the purpose of our analysis, which is to “probe into the structural details of the transcript, to reveal attitudes or patterns of reasoning” (Krippendorff, 2004, pp. 57–58). This method allows us to capture the context and meaning of entire phrases (Weber, 1990), whereas other options, such as word count, ignore the contextual position of the unit in the text (Krippendorff, 2004). With coding at the phrase level, we then assigned each phrase to a specific category associated with the definitional elements of our construct—a variation of the Hinkin and Tracey (1999) content-validity approach. Having defined the coding unit, we then explicitly defined the coding categories to provide clear instruction on how coding should proceed. We developed these categories by conducting research on other existing measures or construct operationalizations pertinent to the constructs in our study (Weber, 1990) until we developed clear working definitions. We also made a specific effort to identify multiple indicators for variables when possible (Boyd et al., 2013). Having defined the coding unit and coding categories, we then tested the coding on a sample of text to formally assess how well our definitions and phrase identifications tapped the appropriate constructs. The first author manually coded two transcripts using the content-analysis program NVivo, assigning relevant phrases to nodes (Krippendorff, 2004). We tested this initial sample by having a second non-author code the same section of text. Prior to this test, the second coder was trained in the process following Krippendorff (2004).

Next, we assessed the accuracy and reliability of the coding on the sample and found agreement to be 93%. Despite the strong reliability, we also discussed and resolved disagreement in coding decisions as well as areas to further clarify and improve the coding-category definitions moving forward. We then revised the coding categories, adding additional definition information; repeated Steps 3 and 4 on one additional case; and found agreement to be 95%. The first author then coded all of the text for the remaining cases. After coding, we assessed reliability following the recommendations of Krippendorff (2004), having the second non-author coder independently code a subset of the total sample—30 of the cases—which were randomly selected from the total sample (not including training cases). The second coder coded the phrases of text that had been coded by the first author in terms of common data language. After comparing coding results, we calculated a Pearson product–moment correlation by correlating ratings between the two coders for the variables of interest (Schmidt et al., 2000).

3.3. Measures

For the dependent variable, we adapted existing scales (Block and Kremen, 1996; Connor and Davidson, 2003) to capture post-disaster functioning on three dimensions of functioning: behavioral, emotional, and assumptive. For each of these measures, we followed the rigorous content-analysis steps detailed above. Below, we provide a summary view of the coding categories for each of the functioning items and the reliability statistics for those categories. Although these three dimensions of post-disaster functioning are consistent with theory, as a robustness check, we considered two different options: 1) measuring and modeling post-disaster functioning as a single-item construct and 2) disaggregating the construct to consist of three unique dependent variables. The results of both models were substantively the same as the results reported below for the aggregated, second order construct of post-disaster functioning.

3.3.1. Behavioral functioning

Consistent with the literature on post-disaster functioning, we assessed the texts for phrases indicative of (1) having social awareness or competence (Bonanno, 2004) (e.g., “I am aware of others socially and can interact competently without being disrupted by thoughts of the recent event”), (2) maintaining concentration at work or “regular tasks” (Coifman et al., 2007) (e.g., “I was able to behave normally at work, interacting with others in a socially acceptable manner”), and (3) coping with stress.

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3 We took several steps to address the moderate sample size (i.e., samples greater than “small” samples of 80 or fewer cases [Shrout and Bolger, 2002]) which are consistent with recently published studies (e.g., Schneider et al., 2005; Zhang et al., 2007). First, we simplified the model by using manifest variables where possible (all but the DV). In addition, as described above, we found similar results for a further simplified model (manifest variable as the DV), conducted as a robustness check. Second, we used multiple indices of model fit for our structural model as some indices are sensitive to sample size (Hu and Bentler, 1999). Finally, we conducted multiple analyses (explained below) to validate our findings (MacKinnon et al., 2002; MacKinnon et al., 2004).
3.3.2. Emotional functioning
For emotional functioning, we followed existing research, which has primarily expressed this construct as the capacity for positive emotions (Folkman and Moskowitz, 2000; Gupta and Bonanno, 2011) as positive emotions following a disaster can “serve as an adaptive coping mechanism that fosters (emotional) self-regulation, promotes social support, and enhances resilience to adversity” (Bonanno and Jost, 2006, p. 314). Positive emotions are associated with reduced distress (Folkman and Moskowitz, 2000) and grief symptoms (Bonanno & Keltner, 2004), as well as the undoing of negative emotions and broadening and building of positive resources and outcomes (Fredrickson, 2001). While research on coping in response to disasters highlights the importance of positive emotions as evidence of functioning (Bonanno, 2004; Gupta and Bonanno, 2011), it also acknowledges that negative emotions will also likely be present as individuals make sense of the new environment and cope with change (Bonanno et al., 2010).

That is, negative and positive emotions coexist in individuals and are not mutually exclusive (Gupta & Bonanno, 2011). For this reason, we controlled for negative emotions in our model (see below), capturing the effect of negative emotions on emotional functioning (positive emotions). To capture emotional functioning, we coded and counted expressions of positive emotions (e.g., “While I have ups and downs, I am happy with the things I am doing and manage to stand with and console those in need while carrying on”) while also controlling for negative emotion (e.g., “For the last two months, I’ve been so angry, wondering why this happened to me”). We determined to control for negative emotions in this way because negative and positive emotions do not necessarily form complete opposites (Fredrickson, 2001; Gupta & Bonanno, 2011). Therefore, empirically bringing together negative and positive emotions is not consistent with theory on emotional functioning. The correlation between the two coders (Schmidt et al., 2000) is as follows: positive emotions ($r = 0.866$) and controlling for negative emotions ($r = 0.903$), both of which indicated reliability ($r > .70$) (Nunnally, 1978).

3.3.3. Assumptive functioning outcomes
Consistent with theory (Beder, 2005; Janoff-Bulman, 1992), we counted coded instances of (1) statements suggesting that the self is capable of good (e.g., “I know that I can make a difference in my community; they need me”), (2) phrases expressing that causality (i.e., causal relationships) still exists in the world (e.g., “Although damaged, I know what to do moving forward and what will result from our actions”), and (3) phrases indicating belief that people in the world are generally well intentioned and that things will work out (e.g., “It’s so amazing to see everyone come together and help; people here are amazing”). The correlation between the two coders (Schmidt et al., 2000) is as follows: the self is capable of good ($r = 0.912$), belief in causality in the world ($r = 0.865$), and belief that people are well intentioned ($r = 0.885$), all of which indicate satisfactory reliability ($r > .70$) (Nunnally, 1978). The construct convergent validity was calculated based on the AVE value across the three measures, which was 0.726 and fell in the acceptable range (Fornell and Larker, 1981).

3.3.4. Venture creation to alleviate others’ suffering
Venture creation was coded 1 for those who initiated new ventures (de novo or de aho) and 0 for those who did not. To qualify as post-disaster new ventures, these ventures needed to begin in the immediate aftermath of Black Saturday (i.e., from one day to two weeks) and needed to be identifiable to outside observers in accordance with the four properties of emerging organizations as expressed in the literature (i.e., intentionality, resources, boundary, and exchange) (Katz and Gartner, 1988). In Appendix III we briefly summarize the primary activity for each venture. For the dichotomous variable of venture creation, we used Krippendorff’s alpha and found a reliability of 1.0, demonstrating agreement between raters ($\alpha > 0.80$) (Nunnally, 1978). In addition to gathering information from the primary data source, we gathered secondary data on each new venture using Factiva, collecting dozens of newspaper articles on each venture (a total of 112 pages single spaced) to confirm our decision to code an individual’s activity as new venture creation.

3.3.5. Human capital
We measured the human capital variables by adapting measures used in the literature (Davidsson and Honig, 2003; Unger et al., 2011). Specifically, for founding experience, we coded cases 1 if individuals had experience creating and subsequently managing an entrepreneurial venture (Davidsson and Honig, 2003) prior to Black Saturday. If an individual did not have previous experience as a founder, we coded the instance 0. Among those who had experience, some (30%) were currently running their own firm, whereas the others held non-entrepreneurial positions at the time of the disaster. For education, we followed established procedures in coding each case for the number of years of education an individual had completed (e.g., 6 for completing primary school [i.e., elementary school], 12 for completing secondary school [i.e., high school], and additional years for post-high school.

4 While the correlation in our data between post-disaster functioning and negative emotions is negative (see Table 1), we found that negative and positive emotions in our data were positively correlated and significant ($r = .246, p < .05$) establishing empirical support for the theory on the co-presence of positive and negative emotions.
education (Davidsson and Honig, 2003). Lastly, for work experience, we coded each case for the number of years of full-time work experience (Davidsson and Honig, 2003).

3.3.6. Controls

As shown in the upper half of Fig. 1, our theorizing explicitly explores the role of human resources and new venture creation on an individual’s post-disaster functioning within the context of loss and other forms of action. As specified in our theorizing, we consider this model in the broader context of resource loss. To test these hypothesized relationships, we controlled for disaster-induced resource constraints that are traditionally most disruptive to post-disaster functioning (Bonanno et al., 2010), as illustrated in the lower half of Fig. 1. Given that property loss and personal injury are considered primary losses that can have the greatest impact on post-disaster functioning (Bonanno et al., 2010; Norris et al., 2002), we adapted measures from the literature (Bonanno et al., 2010; Norris et al., 2002) to capture the extent of resource loss for each individual in our dataset. Specifically, for property loss, we assessed each transcript using a seven-point Likert scale, for which 1 indicates no property loss or damage whatsoever and 7 indicates substantial property loss (e.g., total loss of home, extensive property damage). For physical injury, we assessed each transcript using a seven-point Likert scale, for which 1 indicates no physical injury and 7 indicates significant physical injury (e.g., requiring hospitalization, long-term treatment). While property loss and physical injury are considered primary obstacles that influence post-disaster functioning (Bonanno et al., 2010), we also coded for whether an individual indicated that he or she had lost a friend and/or family member to the disaster using a dichotomous dummy variable (Bonanno et al., 2010). The correlation between the two coders (Schmidt et al., 2000) is satisfactory (r > .70) (Nunnally, 1978) and is as follows: loss of property (r = 0.913), physical injury (r = 0.813), and loss of family or friend (r = 1.0).

In addition to controlling for disaster-induced constraints, we also controlled for other actions individuals may have engaged in, as these actions could theoretically explain variance in post-disaster functioning. Specifically, we created a dichotomous variable, for which 1 indicates additional actions taken and a 0 indicates no other action taken. Additional actions taken included volunteering temporarily in broader efforts (e.g., volunteering to serve food for the Australian Red Cross), taking action to help oneself (e.g., clearing one’s land, working to rebuild one’s home), and/or engaging in government activism (e.g., filing complaints to the government, petitioning lawmakers). Of the 89 individuals in our dataset, 51 individuals took action in at least one of these forms.

Consistent with the literature on venture creation, conservation of resources, and post-disaster functioning, we controlled for a number of other variables that serve as and/or provide access to social resources. First, prior studies exploring both venture creation (Davidsson and Honig, 2003; Unger et al., 2011) and post-disaster functioning (Hobfoll et al., 2011; Norris et al., 2002) have highlighted gender, marital status, and age as resource variables that likely influence both venture creation and functioning outcomes (for review, see Bonanno et al., 2010). Similarly, other studies have (Green et al., 1991) highlighted how the number of children one has likely impacts family responsibilities and challenges following a disaster and, thus, potentially venture creation and post-disaster functioning. We captured these variables by coding for gender (1 = female, 0 = male), marital status (1 = married or co-habiting with a partner, 0 = unmarried/not co-habiting with a partner), age (continuous variable), and number of children (continuous variable). In addition, we controlled for negative emotions using the content analysis approach described above for the functioning variables, because excessive negative emotions inhibit creativity (Fredrickson, 2001) and promote other negative reactions to the environment (Bonanno et al., 2010). Consistent with our content analysis approach, we also controlled for the number of words to explore the effects over and above verbosity (Krippendorff, 2004).

Finally, we took steps to control for individuals’ baseline pre-disaster functioning (see Appendix IV). We developed a measure as a proxy for pre-disaster functioning; the use of a proxy measure is consistent with prior research on well-being (Lucas & Deiner, 2008). We used a code-and-rate content-analysis approach (Krippendorff, 2004) to derive the proxy variable. Similar to the dependent variable, we defined three different components of pre-disaster functioning: behavioral (e.g., maintaining a job, engaging in the community or other roles), emotional (e.g., evidence of the ability to control emotions so as to function in society), and assumptive (e.g., evidence of realistic thoughts, belief that there is good in the world) (Lucas & Deiner, 2008). We then analyzed each transcript and assessed a value for these variables using a three-point Likert scale, for which 1 indicates below-normal functioning (e.g., evidence that an individual could not hold a job, had problems in the community), 2 indicates normal functioning (e.g., evidence that the individual held a job, owned or rented property in a self-sufficient way, interacted positively with others, entered into contracts), and 3 indicates above-normal functioning (e.g., individual was involved in many different activities beyond her or his job, including volunteering extensively, offering counseling or coaching to others, developing property). After coding the data, we then had a second coder follow the same procedures mentioned above to ensure reliability. The correlation between the two coders (Schmidt et al., 2000) is as follows: pre-disaster behavioral functioning (r = 0.89), emotional functioning (r 0.82), and assumptive functioning (r = 0.86). These results indicate satisfactory reliability (r > .70) (Nunnally, 1978).

4. Analysis and results

We used SEM to evaluate our model (Fig. 1; see Table 1 for descriptive statistics). We analyzed the covariance matrix using the maximum likelihood method with the SEM software program Mplus 6.12 (Muthén and Muthén, 1998-2012). As noted by James et al. (2006), there are two prominent approaches to testing mediating models in the psychological literature: the SEM approach (MacKinnon et al., 2002) and the Baron and Kenny (1986) approach. We chose SEM because it provides advantages over alternative path-analysis approaches in offering contributions to theory and for testing mediated paths (Iacobucci et al., 2007; MacKinnon, 2008; MacKinnon et al., 2002; for a comparison, see James et al., 2006). SEM is better suited to estimate both indirect
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<td></td>
<td></td>
</tr>
<tr>
<td>Work experience (years)</td>
<td>19.98</td>
<td>8.42</td>
<td>−.13</td>
<td>.01</td>
<td>.26*</td>
<td>.06</td>
<td>.88**</td>
<td>.16</td>
<td>−.02</td>
<td>.02</td>
<td>−.013</td>
<td>−.110</td>
<td>.150</td>
<td>.13</td>
<td>.15</td>
<td>−</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venture creation</td>
<td>.29</td>
<td>.46</td>
<td>.13</td>
<td>.29**</td>
<td>.09</td>
<td>−.07</td>
<td>.07</td>
<td>−.32*</td>
<td>−.01</td>
<td>−.28*</td>
<td>−.10</td>
<td>−.36**</td>
<td>.017</td>
<td>.45**</td>
<td>.20**</td>
<td>.0120</td>
<td>−</td>
<td></td>
</tr>
<tr>
<td>Post-disaster functioning</td>
<td>4.10</td>
<td>4.09</td>
<td>.11</td>
<td>.6**</td>
<td>.09</td>
<td>.13</td>
<td>.03</td>
<td>−.29*</td>
<td>−.02</td>
<td>−.031</td>
<td>−.05</td>
<td>−.31*</td>
<td>.072</td>
<td>.33**</td>
<td>.10</td>
<td>.09</td>
<td>.68**</td>
<td>(0.80)</td>
</tr>
</tbody>
</table>

Notes: n = 89.
* p < 0.05.
** p < 0.01.
and total effects simultaneously, it provides an ideal balance between statistical power and type I error rates (MacKinnon et al., 2002, 2004) and it can be used on a range of sample sizes (depending on anticipated effect sizes), which can then be further validated using resampling methods (i.e., bootstrapping (MacKinnon et al., 2004)).

We conducted our SEM in three steps, which is consistent with prior research that has tested models on sample sizes comparable to (or smaller than) the current sample (Schneider et al., 2005; Shrout and Bolger, 2002; Zhang et al., 2007) and following current methodological recommendations (MacKinnon et al., 2004). Following Anderson and Gerbing’s (1988) approach for testing SEM models, we (1) confirmed the measurement model using confirmatory factor analysis (CFA) and then (2) analyzed the hypothesized model to assess model fit and the specific hypothesized paths. We then (3) conducted a bootstrap analysis, which researchers recommend as an additional test of mediation (e.g., MacKinnon et al., 2002, 2004). Bootstrapping is helpful in validating findings from traditional SEM and has been used for samples with fewer than 80 cases (MacKinnon et al., 2004; Shrout and Bolger, 2002).

4.1. Confirmatory factor analysis

We validated the construct measures using CFA (Browne and Cudek, 1993). We display the results relevant to the CFA in Table 2, including two different components (2A and 2B). As shown in Table 2 Component A, the results illustrate that the factor loadings were strong and significant (p < 0.01) and that the AVE was well above the 0.5 cutoff (as indicated above) for each item (Fornell and Larker, 1981), indicating high levels of convergent validity. While we envisioned post-disaster functioning as a second-order construct comprising three dimensions (i.e., behavioral, emotional, and assumptive functioning), we examined two alternative models against the baseline second-order model (Model 1). First, we disaggregated the overarching post-disaster functioning construct and found that this alternative model demonstrated worse fit to the data. That is, it performed worse across our key fit indices (CFI, SRMR) and was significantly different when exploring the χ² difference values. Second, we removed an underperforming item from the assumptive functioning dimension and did not find any improvement in the overarching model using the same criteria. Therefore, we kept this item as it captures an important portion of the overall assumptive functioning dimension. In summary, as shown in Table 2 Component B, Model 1 demonstrates adequate fit to the data and provides a significant improvement over alternatives.

4.2. Hypothesized model results

Having confirmed the CFA model’s fit to the data, we proceeded to test the structural model. To determine the overall fit of our model, we reviewed the chi-square index, RMSEA index, CFI, and TLI (Hu and Bentler, 1999) as well as the weighted root mean square residual (WRMR) (Cook et al., 2009; Yu, 2002). The results suggest an acceptable fit to the data and allow us to explore the individual relationships between variables to determine the outcomes of our hypotheses (χ² = 39.886, p = .386, df = 38; RMSEA = 0.024; CFI = 0.982; TLI = 0.984; WRMR = 0.724) (Hu and Bentler, 1999; Muthén and Muthén, 1998-2012; Yu, 2002).

Table 2

Table 2 Measurement model.

<p>| Component A. Standardized factor loadings for the CFA of latent variables |</p>
<table>
<thead>
<tr>
<th>Measurement items</th>
<th>Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Functioning</td>
<td></td>
</tr>
<tr>
<td>Social awareness or behavioral competence</td>
<td>.94</td>
</tr>
<tr>
<td>Maintaining concentration at work or on “regular” tasks</td>
<td>.95</td>
</tr>
<tr>
<td>Ability to cope with stress enough to plan for the future</td>
<td>.95</td>
</tr>
<tr>
<td>Emotional Functioning—capacity for positive emotions</td>
<td>-</td>
</tr>
<tr>
<td>Assumptive functioning</td>
<td></td>
</tr>
<tr>
<td>Statements suggesting that the self is capable of good</td>
<td>.73</td>
</tr>
<tr>
<td>Expressions of belief that causality (i.e., causal relationships) still exists in the world</td>
<td>.85</td>
</tr>
<tr>
<td>Belief that people in the world are generally well intentioned or that things will work out</td>
<td>.69</td>
</tr>
<tr>
<td>Post-disaster functioning (second-order construct)</td>
<td></td>
</tr>
<tr>
<td>Behavioral functioning dimension</td>
<td>.98</td>
</tr>
<tr>
<td>Emotional functioning dimension</td>
<td>.87</td>
</tr>
<tr>
<td>Assumptive functioning dimension</td>
<td>.90</td>
</tr>
</tbody>
</table>

<p>| Component B. Comparison of measurement modelsa |</p>
<table>
<thead>
<tr>
<th>Model</th>
<th>Factors</th>
<th>χ²</th>
<th>Δχ²</th>
<th>df</th>
<th>CFI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Second-order functioning construct with two latent dimensions and one single-item dimension</td>
<td>50.20</td>
<td>18</td>
<td>.95</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Two latent constructs (behavioral and assumptive functioning) and one single-item dimension (emotional functioning)</td>
<td>57.54</td>
<td>7.34**</td>
<td>18</td>
<td>.94</td>
<td>.08</td>
</tr>
<tr>
<td>3</td>
<td>Two latent constructs (behavioral and assumptive functioning) dropping the third item in the assumptive functioning scale and one single-item construct (emotional functioning)</td>
<td>60.90</td>
<td>3.36</td>
<td>13</td>
<td>.91</td>
<td>.20</td>
</tr>
</tbody>
</table>

a Significance of Δχ² compared to baseline Model 1 is indicated.

** p < 0.01.
To test our hypotheses, we estimated each individual path in the model because significant relationships between the independent variable and the mediating variable as well as between the mediating variable and the dependent variables suggest mediation (Iacobucci et al., 2007). We also calculated the combined indirect effects (i.e., product of the coefficient paths) to derive an overall indirect effect (MacKinnon et al., 2002). In Fig. 2, we highlight the results of the hypothesized model.

In Hypothesis 1, we proposed that the path between human capital—namely, (a) founding experience, (b) education, and (c) work experience—and post-disaster functioning is negative when it does not involve investment in venture creation. The results indicate a significant and negative relationship between founding experience (β = −0.482, p < 0.05) and post-disaster functioning as well as between education (β = −0.337, p < 0.05) and post-disaster functioning but do not indicate a significant relationship with work experience (β = 0.115, p > 0.05) and post-disaster functioning. These findings provide support for Hypothesis 1a and b but not c. In Hypothesis 2, we proposed that the path between venture creation and post-disaster functioning is positive. The results indicate a significant and positive relationship between venture creation (β = 0.813, p < 0.01) and post-disaster functioning, providing support for Hypothesis 2. In Hypothesis 3, we proposed that the path between human capital—namely, (a) founding experience, (b) education, and (c) work experience—and venture creation is positive. The results indicate a significant and positive relationship between founding experience (β = 0.66, p < 0.01) and post-disaster functioning as well as between education (β = 0.46, p < 0.05) and post-disaster functioning but no significant relationship between work experience (β = −0.081 p > 0.05) and post-disaster functioning. These findings provide support for Hypothesis 3a and b but not c. In Hypothesis 4, we proposed that the path between human capital—namely, (a) founding experience, (b) education, and (c) work experience—and post-disaster functioning is positive when it goes through venture creation. The results indicate a significant and positive indirect relationship between founding experience (β = 0.537, p < 0.01) as well as education (β = 0.374, p < 0.01) and post-disaster functioning but do not indicate a significant indirect relationship between work experience (β = −0.066, p > 0.05) and post-disaster functioning. These findings provide support for Hypothesis 4a and b but not c.

4.3. Bootstrap analysis

Bootstrapping is a resampling method recommended as a means of exploring the confidence intervals of a hypothesized path (MacKinnon et al., 2004). Specifically, bootstrapping provides a more rigorous test of the significance of the effects found in the traditional path model (Shrout and Bolger, 2002). Using MPlus, we followed the recommendations of Lau and Cheung (2012) to create 500 samples by randomly resampling the original data (with replacement). The result was a bootstrapped sampling distribution with which we determined the confidence intervals and p-values for our hypothesized relationships. We then reviewed the confidence intervals for the hypothesized relationships (as shown in Fig. 1) to determine if the 95% confidence interval contained 0. If 0 is not in the confidence interval, then the results support our theorizing that the hypothesized paths are...
significantly different from 0 (Lau and Cheung, 2012; MacKinnon et al., 2004). The results are consistent with the path model analysis.5

4.4. Path-model controls—resource constraints and other action

As indicated in Fig. 2, we controlled for resource constraints, other forms of action taken by individuals, and pre-disaster well-being in our overarching SEM model. The results indicate a significant and negative relationships between loss of property and venture creation (β = −0.40, p < 0.05), but non-significant relationships for the other resource constraint controls: physical injury (β = 0.006, p > 0.05) and lost loved one (β = 0.17, p < 0.05). The results also indicated non-significant relationships between all of the resource constraint variables and post-disaster functioning (loss of property [β = 0.173, p > 0.05], physical injury [β = 0.101, p > 0.05], and lost loved one [β = −0.234, p > 0.05]). The results for other actions taken by individuals indicate no significant relationships for the human capital (β = −0.03, p > 0.05; β = −0.26, p > 0.05; β = −0.35, p > 0.05) or the resource constraint controls (β = 0.03, p > 0.05; β = 0.07, p > 0.05; β = −0.32, p = 0.07) with the other action variable (see Fig. 2). Similarly, the results show no significant relationship between other action and post-disaster functioning (β = −0.195, p = .1). Finally, the results indicate a positive and significant relationship between pre-disaster well-being and other action (β = 0.6, p < 0.01), but indicate a non-significant relationship between pre-disaster functioning and venture creation (β = −0.28, p > 0.05) as well as post-disaster functioning (β = 0.251, p > 0.05).

4.5. Alternative model: testing the model without a mediator

Given our theorizing and associated model (i.e., SEM model versus the multi-step regression model (James et al., 2006; MacKinnon et al., 2002)), we at no point tested the relationship between the independent variables (i.e., human capital and disaster-induced resource constraints) and post-disaster functioning without also including venture creation in the model. Therefore, as a robustness check, we explored a model that excluded the hypothesized mediator of venture creation. The reduced model did not demonstrate acceptable fit (χ² = 357.146, p > 0.05; CFI < 0.9; RMSEA > 0.08), suggesting that our mediation model explains the data better.

4.6. Robustness test: change in functioning

As a final robustness check for our results, we conducted another content analysis of our data assessing change in functioning as a dependent variable in place of the post-disaster functioning and pre-disaster proxy variables detailed above. That is, we recoded our data, rating each case for the degree of change in one’s behavioral, emotional, and assumptive functioning. Following the same rigorous content-analysis techniques above (i.e., defining each variable, outlining coding instructions, and then coding the data), the first author first coded and rated each case for change in functioning as either a 1, 2, or 3, where 1 indicates that the individual experienced a negative change in functioning after the disaster, 2 indicates that the individual appeared to be about the same in functioning as prior to the disaster, and 3 indicates that the individual experienced a positive change in functioning. A non-author second coder who was unaware of the hypotheses or objectives of the study was used to assess the reliability of the coding. The correlation between the two coders (Schmidt et al., 2000) is satisfactory (r > .70) (Nunnally, 1978): change in behavioral functioning (r = 0.87), emotional functioning (r = 0.82), and assumptive functioning (r = 0.83).

As with our primary model, we used Mplus to analyze our structural model with change in functioning as the dependent variable; change in functioning is a latent construct composed of the three components (i.e., behavioral, emotional, and assumptive functioning). We used the same controls as the primary model, excluding the pre-disaster functioning variables as we captured change in functioning as part of the dependent variable. The results of this robustness check support our findings. Specifically, the results suggest an acceptable fit to the data (χ² = 15.379, p = .3527, df = 14; RMSEA = 0.033; TLI = 0.973; WRMR = 0.517) (Hu and Bentler, 1999; Muthén and Muthén, 1998-2012; Yu, 2002) and demonstrate support for our hypotheses consistent with the original model: H1a (β = −0.592, p < 0.05), H1b (β = −0.533, p < 0.01), H1c (β = −0.255, p > 0.05), H2 (β = 0.750, p < 0.01), H3a (β = 0.66, p < 0.01), H3b (β = 0.46, p < 0.05), H3c (β = −0.081, p > 0.05), H4a (β = 0.495, p < 0.01), H4b (β = 0.349, p < 0.01) and H4c (β = −0.061, p > 0.05).

5. Discussion

While research on venture creation has expanded beyond economic value creation (Dean and McMullen, 2007; Haynie and Shepherd, 2011; Peredo and Chrisman, 2006; Powell and Baker, 2014), there is still much to be learned about how entrepreneurs create potentially transformative non-economic value for themselves through new venture creation—that is, how entrepreneurial
action is a potential vehicle for overcoming adversity. Drawing upon COR theory and the entrepreneurship literature, we made two sets of theoretical arguments for how new venture creation impacts entrepreneurs’ post-disaster functioning. First, venture creation promotes functioning by facilitating resource investment. Specifically, individuals who invest resources for new venture creation become committed to future actions, engage with others, and work with other outsiders interested in providing additional resources, all of which promote resource development and functioning. Second, those who have high levels of human capital and fail to engage in venture creation as a resource-investment activity are likely to experience regret for not taking action, hold a negative view of the relevance of existing resources (for the disaster environment), and feel anxiety associated with the gradual but inevitable separation from outside support as time progresses. Our findings support these arguments and provide a number of contributions and opportunities for future research.

First, venture creation contributes to value outcomes for the entrepreneur. New ventures appear to provide individuals with social interaction, attentional focus on positive future-oriented tasks, and the opportunity for problem solving and resolution, all of which may represent mechanisms underlying positive functioning outcomes. This finding extends classic entrepreneurship research on the outcomes of venture creation, which includes opportunity formation (Shane, 2003) and exploitation (Autio et al., 2013) from an economic perspective. Similarly, this finding extends research on the non-economic value (Dacin et al., 2011) derived from venture creation, such as psychic income (Gimeno et al., 1997), post-trauma identity (Haynie and Shepherd, 2011; Oyserman et al., 2002), and autonomy (Smith and Miner, 1983).

Our theorizing and findings suggest that venture creation is a vehicle that enables individuals to manage challenges through naturally occurring social interactions and exchanges. That is, the creation of a venture appears to provide an important “passageway” (Hobfoll, 2011) through which individuals can deploy resource reserves toward future gains. Prior research has emphasized how entrepreneurs use existing (i.e., pre-adversity) ventures as a vehicle to interpret and realize a new identity while exposed to adversity (Powell and Baker, 2014). Powell and Baker (2014) explored how entrepreneurship could assist in emphasizing positive aspects of one’s identity within the context of broad and persistent adversity (i.e., decline in the regional textile industry during the Great Recession). Our findings extend this line of theorizing to rapid responses under the acute adversity as experienced in a disaster. Importantly, actions that result in post-disaster functioning likely lead to further resource development and enhancement for entrepreneurs—which could potentially include providing and/or restoring new, positive identity components. This extends other theories of stress and coping, which suggest that restorative coping (i.e., exploring who I am after a loss-event) is helpful and can function as a distraction from the loss (Stroebe and Schut, 2010). While venture creation could serve as a distraction from the loss, it importantly serves as a mechanism for triggering resource development and growth, going beyond mere distraction. This finding has implications for research on how entrepreneurs respond to other negative resource-destroying events, such as entrepreneurial failure (for a review, see Ucbasaran et al., 2013). For example, could engaging in activities to support or help others following a failure reduce feelings of grief and allow the individual to begin building new resources to venture again? There are considerable research opportunities to build on the emerging prosocial and compassion-motivated literatures to theorize on how engaging in entrepreneurial acts to help others promotes an entrepreneur’s functioning and resource development. In addition, future research could explore if and how other resource stocks and actions beyond those explored in our post-hoc analysis influence resource outcomes for both individuals and organizations. Are some resources more vulnerable to deterioration? Does resource creation vary according to the type of actions?

Second, our results suggest that the value of resource stocks in the context of an external jolt is influenced by how resources are used such that resource-development actions and resource-protection actions influence post-disaster functioning. Although prior research has suggested that human capital has both a positive (Davidsson and Honig, 2003) and a potentially negative (Hayward et al., 2006) influence on entrepreneurial outcomes, it has done so largely independent of considerations regarding sudden resource loss and subsequent action. An important implication of our study is that action in the form of venture creation in the wake of sudden resource loss enables individuals to capitalize on human-resource stocks, resulting not only in resource preservation but also in resource gains. Entrepreneurial action is filled with risks and the potential for surprise given the general uncertainty of the environment, and the implications of this study extend our understanding of how deploy resource stocks the face of loss.

Another implication of this study is that different types of human-capital resources differentially influence whether individuals take action in a disaster context. Indeed, we found that work experience does not have a significant direct or indirect affect on functioning. It could be that work experience itself is too general a resource to be conceived of in terms of a fit with the environment. That is, perhaps people with broad, general work experience do not perceive a fit between that experience and opportunities to engage in post-disaster action. By combing the different types of work experience in one aggregate measure, this study may also have been unable to capture the nuanced relationship between work experience and functioning. Future research can explore these nuances using finer-grained measures of work experience.

Furthermore, our study underscores that when those impacted by a resource jolt become focused on resource protection as opposed to resource investment, they fail to draw upon and develop stocks of resources. As detailed in COR theory (Hobfoll, 2001), humans have multiple and competing needs and goals, and in times of crisis, they might abandon some goals (e.g., continuing to develop their career, etc.) in favor of other actions, such as coping as a family, seeking counseling, and so forth (Hobfoll et al., 2007). That is, given the unique situation posed by a disaster, “the resources [victims] choose to conserve or acquire represent resources with greater [perceived or actual] value” in that moment (Halbesleben et al., 2014, p. 1341). A resource-preservation posture can result in a focus on losses, threats, and inaction (or small conservative actions), whereas an investment focus drives individuals toward acceptance, future opportunities, and bold actions. In this sense, the key strengths of human capital as a resource stock (Ucbasaran et al., 2008) end up being “downgraded” in their perceived usefulness for the
experienced individual’s post-disaster functioning when he or she does not engage in venture creation following a disaster. An implication of this finding is that entrepreneurship studies not only need to consider the usefulness of a resource stock—namely, the notion that increased quantity leads to increased benefit—but should also question the impact of unused resources due to perceived misalignment with the environment.

Finally, the findings in this study extend research on work-related obstacles and how individuals overcome these obstacles to generate positive outcomes. In an effort to support disaster victims, many disaster responses involve “lightening the load” of victims by replacing them in activities and providing them with “psychological interventions” (Bonanno et al., 2010; Hobfoll, 2002). Unfortunately, these efforts can be deleterious, with some individuals experiencing more trauma from the intervention than from the event itself (Bonanno et al., 2010). The findings from this study extend a small but emerging literature on the potential benefits of highly challenging and effortful activities for those experiencing stressors (Lilios, 2012). Creating a new venture is inherently time consuming, risky, and challenging under traditional circumstances (Katz and Gartner, 1988; Gartner, 1985), but despite these challenges, we found that those individuals who engage in new venture activities following a disaster experience positive personal outcomes.

5.1. Limitations and directions for future research

While we took care when developing the causal ordering of our model—separating each measure by time (MacKinnon et al., 2002), identifying pre-disaster functioning measures as controls, developing robustness tests for change in functioning, and finding support for the causal ordering of key relationships—future research can further explore the nature of these relationships. In particular, subsequent research can draw upon longitudinal data-gathering efforts of functioning to try to measure changes in functioning (e.g., before, during, and after a disaster). By capturing longitudinal data, research could explore the COR conceptualization of spirals of resource loss or gain. Exploring whether these spirals exist for individuals who create ventures and how they differ for those who do not could contribute to both the entrepreneurship and post-disaster functioning literatures.

Furthermore, additional contexts could be explored, such as corporate venturing activity following a crisis, to investigate similarities or differences to the model presented here. Given the early developmental stage of research on resilience and post-crisis functioning in the field of entrepreneurship (Powell and Baker, 2011, 2014; Shepherd and Williams, 2014), we believe there are potentially fruitful opportunities to extend and enhance the findings developed in this study to expand our understanding of the nomological network of resilience outcome variables. These enhancements could be realized by exploring explicit differences across contexts, such as venture type, motivation (e.g., for-profit versus non-profit), and duration. Similarly, future studies could include social variables (e.g., network structure relationships, etc.) to better understand the social context of venturing for the alleviation of suffering. While we capture general social resource stocks in our model, a more nuanced view of how social resources are deployed to help others and to what effect can extend the model expressed in this study.

This study is limited in its scope in that it studies one disaster event (i.e., a bushfire) in rural Australia. Australia is a developed and sparsely populated country, so it may be unreasonable to assume similar levels of resource availability in a less-developed country. Similarly, although it seems that our findings would generalize to other types of natural disasters (e.g., earthquakes, tsunamis, hurricanes), there could be differences in these settings as well as in settings involving other causes of environmental shocks. To extend the generalizability of this study, additional research could theorize about and empirically investigate a variety of other crisis contexts, including different types of environmental shock, highly populated city environments, other developed countries, and developing economic settings. Similarly, in this study, we found that the ventures were prosocial (at least to some degree). However, there could be other instances when post-disaster ventures take advantage of fellow victims rather than help them. Subsequent research could explore differences across venture objectives (i.e., other serving versus other exploiting) and the ways these differences influence both individual (i.e., functioning) and community (i.e., disaster recovery) outcomes.

Finally, while our empirical evidence and theorizing led us to explore functioning as an aggregated second-order construct, we anticipate that subsequent research could build on this initial finding to explore additional nuances between the sub-dimensions. Does venture creation lead to functioning in each dimension over longer periods of time, or is there variance? Are some dimensions more easily influenced by psychological interventions? We anticipate considerable opportunities for future research to add meaningful contributions to this topic as it is just emerging in the entrepreneurship literature.

5.2. Conclusion

New ventures are value-generating mechanisms. While research has expanded our perspective beyond the economic value created by ventures to both social and environmental value, there is still much to learn about the consequences of venture creation for the entrepreneur. In this study, we built on an emerging body of literature that explores how individuals use entrepreneurship to overcome adversity, which is a concept not currently explored in traditional conceptualizations of entrepreneurial opportunity. We found that despite the challenging environment following a disaster, victims pursue opportunities to help others and, in doing so, help themselves recover from an extreme crisis. We built on COR theory and found that those who draw upon resource stocks to create ventures achieve higher levels of functioning than those who do not apply their resource stocks toward venture creation. These findings have important implications for entrepreneurship research on overcoming adversity as well as for the disaster-response literature on providing for the needs of victims following a disaster.
### Appendix I. Examples of the theoretical model paths

<table>
<thead>
<tr>
<th>Path</th>
<th>Representative qualitative evidence</th>
<th>Principal post-disaster action</th>
<th>Post-disaster functioning</th>
</tr>
</thead>
</table>
| Low human capital, no venture creation, low functioning | Camilla Johnson  
Entrepreneurship experience: no prior experience; education: 8 years; work experience: 9 years | Focused on personal asset recovery | “It is hard to understand and accept that life will never be the same again. At times the grief for the lost life and resentment and pain for the sudden change forced upon us has been unbearable. There have been many days when I have sat inside and thought ‘where do I start?’ … The whole vastness of the tasks overwhelmed me completely and at the end of each day nothing got done.” |
| Tristan Everett  
Entrepreneurship experience: no prior experience; education: 10 years; work experience: 8 years | Focused on lobbying government for relief, focus on personal asset recovery | “Black Saturday has been traumatic for [my family] and stressed us out. Since that time, [my daughter] does not like to be separated from us at all. … [Also], I have not been satisfied with the way I have been treated by my insurer. I have been arguing with them since day one … we are still living in a shed [awaiting long-term relief] … the government cut funding for back burning … this greatly increased our risk during any bushfire.” |
| Hallie Norton  
Entrepreneurship experience: owned and ran single business; education: 18 years; work experience: 26 years | Focus on personal asset recovery, government lobbying | “Since the fires we have had major issues, things have been very difficult … I don’t think volunteers [helping with the recovery] were well trained or equipped to deal with our situation. Things seemed to be in total chaos. It appeared no-one was organized … [In addition], I am extremely upset about the manner in which the rebuilding of [our town] is being planned … we are now living in a rented unit, which is the first time in years we have not lived in our own home [which is very difficult].” |
| Kate Halvorsen  
Entrepreneurship experience: owned and ran two businesses; education: 14 years; work experience: 12 years | Short term volunteering (2 days), focus on insurance claims, etc. | “Our closest neighbors were approximately 70–80 ft from [our door] … they all died. They should have been in our bunker, we had capacity to take all those people but none of us expected the [degree of crisis] … Although we’ve now moved away from the area we still struggle. I don’t have the capacity to work five days a week but I’m still trying to work … [until now] I had never been on unemployment benefits in my life. I know many people [like me] who are not going back to their previous job as they are in no mental state to cope with work … everybody has been affected in some way. Although [my] café survived the bushfires I sold it for a very low price soon after they opened the roads to the general public … I knew when you are breaking down, going out the back of the shop, and sitting in your car weeping - something had to change [so I sold the café].” |
| Natalee Bingham  
Entrepreneurship Experience: Owned and ran one business; education: 16 years; work experience: 15 years | Started and operated a venture | “We lost all of the cattle in the fire and our fences … we have made fencing our new hobby and it is going to keep [us] very busy for a while [now that the venture is finishing] … we had some amazing physical assistance with the fencing effort. The prison crew came and worked … they were just fantastic … It was actually therapeutic for me because it gave me something to do … I arranged morning teas for [the prisoners] and every day my group of friends would arrive with cakes and sandwiches for the guys … I feel quite amazed and very lucky that we managed to save our lives that night [Black Saturday]. We are indeed most fortunate to be alive.” |
| Ace Evie-Pax  
Entrepreneurship experience: owned and ran business; education: 16 years; work experience: 24 years | Started and operated venture | “We suffered approximately $50,000 worth of damage including to our house, fences, water tanks [and so forth] … But overall we got away lightly … Our friends had no idea that we had been impacted upon [in the immediate aftermath of the fire], so the fire was more of a shock to them than to us … In terms of recovery, I think we all came together as a community to begin with … I am very proud of our …” |
Appendix I. Examples of resource protection and investment

<table>
<thead>
<tr>
<th>Path</th>
<th>Representative qualitative evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>High human capital, no venture creation, low functioning</td>
<td>Human capital: community ... [After things settled] we contacted everyone in our area and hosted a street party. Most people attended despite the trauma they were going through ... we discussed with them what had worked and what had not [which helped them heal].</td>
</tr>
</tbody>
</table>

(Names have been changed to protect individual's identity).

Appendix II. Examples of resource protection and investment

**Resource posture**

Resource protection: ongoing trauma and attempts to conserve remaining resources

- "I couldn't sleep. I felt numb. I watched the TV or reports and saw a lot about [my town] ... I can hardly afford to pay my monthly mortgage ... I will now do things very differently." [Ryan David]

- "Rebuilding is very difficult. I am in contention with my insurance company about the amount they will pay for the destroyed houses ... I don't know where I stand and it is all taking so long... The longer it takes, the harder it seems and the longer I am without home and sufficient income ... I can't walk down the street without crying when I pass the houses of the people we lost." [Rachael Spencer]

- "I don't have the capacity to work five days a week at the moment ... I have never been on unemployment benefits in my life [until now]. I know there are many people that were affected by the fires that actually haven't even gone back to work—not for one day and they are not going back to their previous jobs as they are in no mental state to cope with work ... Although [my business] survived the bushfires I sold it for a very low price soon after they opened the roads to the general public ... we couldn't cope ... I was breaking down ... something had to change." [Kate Halvorsen]

- "[I] had invested a lot of ourselves in leading a challenging but independent and self-sufficient life in the area. Now we are dependent on other people to assist us to rebuild our lives up there, if we choose to rebuild ... I am exhausted, I feel despair and dismay every day and I have immense trouble thinking about the future. I've noticed myself become impatient and intolerant and this is something very foreign to me and I don't like it. I'm sick and tired of dealing with bureaucracy, paper work and processes. I hear my friend who perished in the fires. I hear her voice and I hear her screams — often, I worry about my husband and my children. I miss my community, my home, my garden and my farm animals." [Abi Kay]

- "I didn't cope well after the fire. I felt like I was in a hole that I couldn't see a way out of. One of the biggest problems for us was sleep deprivation ... I remember someone different from the insurance company ringing me every week saying they were still waiting on an asset list. I remember saying to them, I don't own a computer, I don't own a pen and paper, I am in emergency accommodation, I don't have the time, my brain is not right to sit down and actually write that list for you. I also didn't want to face it - I didn't want to sit down and remember what I had lost and I didn't have the energy to do it ... I feel stressed all the time ... I don't feel that I cope as well with minor issues and problems as I did prior to the fires ... we are always under pressure to get things done ... I am attending counseling and finding that it is difficult to schedule it ... I really feel the fire has taken 10 years of my life." [Lucy Feichert]

- "Since the fire we are focusing on getting our animals back on our property [we had to send those that didn't die off somewhere else while we got our land back up and going] ... We have seen that there is a huge amount of money being spent on commemorative events, memorials, counseling sessions and so forth. We are told that this will help us recover. However, for most people I think that it would be better if they could just have their share of the money to help their bills [so we can cope]." George James

**Resource investment: investment in generating resources for future opportunities**

- "During the weeks [after Black Saturday], I have spent many hours helping to organize the recovery effort as well as a series of community events. One of the things I helped organize was a large community information meeting at the Haven Community Hall. About 250 people came to the meeting and my role was to help organize all the background planning, food, assisting with audio equipment and the seating for the meeting. This was only one of the numerous meetings which I helped to organize. My work during the recovery period also included the following: meeting with local politicians and reporting on how the community was holding up; participating in working bees at properties where fencing and sheds had been damaged; meeting with the local council to discuss and organize cleanup work on affected properties; [and so forth]." [Sarah Reese]

- "As the enormity of the disaster became clear the next day [i.e., day after Black Saturday] we began to think about the recovery ... My father and I were discussing with them what had worked in the past and we talked about the rebuilding of communities and so forth. We discussed with them what had worked and what had not [which helped them heal]."

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Appendix III. Ventures created and primary activities.

<table>
<thead>
<tr>
<th>Name</th>
<th>Primary venture activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinglake relief</td>
<td>Deliver communications and relief supplies to the community</td>
</tr>
<tr>
<td>Goldcoast getaways</td>
<td>Provide psychological counseling and “beach getaways” to victims</td>
</tr>
<tr>
<td>Fire network communication</td>
<td>Establish disaster communications infrastructure (for future disasters)</td>
</tr>
<tr>
<td>Marysville Triangle project</td>
<td>Provide communications, psychological counseling, etc.</td>
</tr>
<tr>
<td>Youth and environment recovery</td>
<td>Youth recovery, environmental recovery, and psycho-social needs</td>
</tr>
<tr>
<td>Fire shelter</td>
<td>Identify and offer solutions for future community fire shelters</td>
</tr>
<tr>
<td>Business promotion</td>
<td>Business fireguard and promotions</td>
</tr>
<tr>
<td>Black Spur relief</td>
<td>Provide communications, accommodations, food, and clothing</td>
</tr>
<tr>
<td>Engineering surveys</td>
<td>Conduct extensive surveys, building assessments, etc.</td>
</tr>
<tr>
<td>Water purification</td>
<td>Remove contaminants from water sources</td>
</tr>
<tr>
<td>Fencing and agistment</td>
<td>Provide labor/materials for fencing; agistment for animals</td>
</tr>
<tr>
<td>Horticulture</td>
<td>Plant replenishment and gardening solutions</td>
</tr>
<tr>
<td>Housing</td>
<td>Temporary housing solution (that could be expanded/made permanent)</td>
</tr>
<tr>
<td>Warehouse and goods delivery</td>
<td>Acquire, warehouse, and deliver goods and materials</td>
</tr>
<tr>
<td>Medical unit</td>
<td>Provide emergency medical care and psychological counseling</td>
</tr>
<tr>
<td>Survival list and local festival</td>
<td>Provide information on survivors; encourage economic investment</td>
</tr>
<tr>
<td>Memorial gardens</td>
<td>Garden and flower arrangements for memorials</td>
</tr>
<tr>
<td>Emergency response supplies</td>
<td>Delivery of meals and supplies to emergency response teams</td>
</tr>
<tr>
<td>Fire preparation</td>
<td>Consultations on use of sprinklers and other fire defense systems</td>
</tr>
<tr>
<td>Weerite fencing and agistment</td>
<td>Provide labor/materials for fencing; agistment for animals</td>
</tr>
<tr>
<td>Food and gasoline distribution</td>
<td>Obtain and distribute food, gasoline and other materials to community</td>
</tr>
<tr>
<td>Egg project</td>
<td>Sell and distribute eggs to raise funds and feed victims</td>
</tr>
<tr>
<td>Community investment group</td>
<td>Provide communications, consulting on moving forward, etc.</td>
</tr>
<tr>
<td>First aid and accommodation</td>
<td>Provide communications, accommodations, food, and clothing</td>
</tr>
<tr>
<td>Counseling</td>
<td>Provide psychological counseling and organize community playgroups</td>
</tr>
<tr>
<td>Psychological guidance</td>
<td>Address depression in community, provide guidance and counseling</td>
</tr>
</tbody>
</table>

a All ventures achieved a degree of positive outcomes (i.e., alleviating suffering), so the founders considered them a success.

Appendix IV. Examples of changes in functioning

<table>
<thead>
<tr>
<th>Functioning ➔ non-functioning</th>
<th>Functioning ➔ functioning</th>
<th>Functioning ➔ increased functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Former entrepreneur who sold café “I have started as a part time sale representative for a company that produces fire shelters ... we couldn’t cope; the whole main street couldn’t cope. For example, [in response to a question of whether he knew people that had died]: “I said to him ‘I’m standing up and you’re sitting down, I can put my left hand out and just grab your throat and start squeezing slowly and you’ll not move from where you’re seated.” [Kate Halvorsen]</td>
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<tr>
<td>Emergency response team member “I stayed behind to defend the house and respond to requests for emergency medical assistance as part of the Kinglake Community Emergency Response Team (CERT). As a result of both of these activities, I found myself in some dangerous situations once the fire arrived but I survived uninjured. I then spent the next nine days providing emergency medical assistance to other fire-affected people in the Kinglake Ranges.” [Owen Thomas]</td>
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<tr>
<td>Natural resource management worker “I had to acknowledge that [my location] was more of a fire zone and that I should find out how to deal with that risk. I was a member of the community fireguard group for the rest of the time that I lived in [in my town], I bought a fire pump and developed a fire plan. I was part of a fire tree with my group, and early on the group did a number of trials to check that the fire tree worked ... [as to my response to the disaster] I am happy with the way our fire plan worked, and there is very little we would do differently in future. I would store things we really wanted to keep in the house rather than in the storage shed ... I believe my community fireguard training stood me in good stead.” [Ruby Logan]</td>
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<tr>
<td>City council member “After Black Saturday, I had a key role in coordinating the recovery efforts ... I ran daily community meetings in Kinglake and its surrounds. I arranged for a number of relief and emergency services agencies to attend each meeting. I also chaired agency briefings twice a week. I helped to coordinate the delivery and dissemination of material aid and resources to the communities, and arranged transport for those wishing to leave the area within the first few days after the fires. I was involved across the recovery process – from the initial “response” stage (on 9 February 2009) to the longer-term “recovery stage”, continuing until August 2009. Overall, I feel very privileged to have been a part of the recovery process and I am so proud of the way our community coped in such a devastating situation.” [Sarah Reese]</td>
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<td>Truck driver “[My son] and I have been seeing a trauma counselor together. She told us that in future if something happens it could bring it all back up again. I have been quite depressed over it all but I don’t have much choice in the matter I have a wife and kids to worry about. [in response to a question of whether he knew people that had died]: “I said to him ‘I’m standing up and you’re sitting down, I can put my left hand out and just grab your throat and start squeezing slowly and you’ll not move from where you’re seated.” [Kate Halvorsen]</td>
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<tr>
<td>Local venture founder “…I served as mayor in 2005 … [since then] I have held a number of different business management and development roles in the local area, particularly with the local forestry and tourism industries … Since the bushfires, I have been actively involved in the Marysville and Triangle Development Group … I was a founding member of the group and I am currently its President … Over the weeks following Black Saturday, we organized community meetings … which helped us to get an idea of who needed help and exactly what it was that they needed. This led to the development of the temporary residential village. We also assisted with some ...</td>
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<tr>
<td>Biologist and utility employee “My experiences in seeking relief were frustrating and somewhat demeaning … no-one was prepared to help me. I was not motivated by the prospect of receiving charity, but I had been badly affected by the bushfire and I needed help. I felt like I was being treated like a tourist.” [Will Ryrieson]</td>
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<tr>
<td>Demolition worker “[The fire] destroyed the house, the unit, a nearby shed and all of our possessions, including boats, motorbikes and cars. I was at the property when the fire came through with four other blokes (my...</td>
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(continued)

<table>
<thead>
<tr>
<th>Functioning → non-functioning</th>
<th>Functioning → functioning</th>
<th>Functioning → increased functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retiree managing small farm</td>
<td>wife, kids, aunty and uncle were all elsewhere) and we all survived uninjured ... everyone has been really good and we have not had any problems at all.&quot; [Sadie Larsen]</td>
<td>of the logistics (erecting marquees, distributing community notices, etc) behind many of the funerals and memorial services which were held for local people who had died. We also organized a couple of counseling rooms in Taggerty where people could come and have a coffee and chat to a professional counselor in private, or just chat with other members of the community.&quot; [Annie Daniel]</td>
</tr>
<tr>
<td>Horse-breed and trainer</td>
<td>Lecturer</td>
<td>&quot;We stayed and fought the last fires in 2006 with buckets and mops. After that experience, we knew that no matter what we were going to leave [in the event of a fire] ... When I went back [to our house after Black Saturday] I saw that the fire had passed our house missing it by 50 m. The back of our property had been all burnt out. We were just lucky that the fire missed our house ... We found some organizations did not want to help us when they knew that we are insured ... I would also like to be able to make my block safer by removing dead vegetation around the house and doing something about the thick undergrowth in the valley. I love the bush, I don't want to clear everything, I don't want pasture or concrete, but I do want to be able to clean it up so that it's safe to live here. At present, the restrictions put in place by the council prevent me from doing that.&quot; [Jack Adelaide]</td>
</tr>
</tbody>
</table>

References


