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Essays Examining Humanitarian Supply Chains: Investigating Operational Characteristics, Activities, and Performance

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Investigating Operational Characteristics, Activities, and Performance

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by

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Abstract

As the frequency and severity of disasters continue to increase, the need for collaboration amongst all humanitarian stakeholders in humanitarian supply chain activities during all aspects of the disaster cycle has become more critical to the success of relief operations. Humanitarian non-governmental organizations (NGOs) are voluntary organizations operating in highly dynamic and chaotic environments to provide aid to people in need. But as the impact of disaster increases and the funding becomes more limited and competitive, they face mounting pressures from stakeholders to improve the quality of their operations. Similarly, private organizations are also under higher levels of scrutiny to become more socially responsible. In response, literature has turned to service operations and corporate social responsibility research, focusing on customer service and integration improvements as a path toward more effective disaster relief outcomes. Therefore, this dissertation aims to build upon this humanitarian service research stream. This dissertation examines how the humanitarian supply chain's operational characteristics affect the workforce and community integrative behaviors, operational activities in the wake of disasters, and collaborative efforts between relief actors. Essay 1 employs approach-avoidance theory to examine the effects of trauma exposure on aid worker behaviors and supply chain integration activities. It also examines the moderating effects of various forms of supervisor support. Utilizing a scenario-based vignette experiment, results indicate that trauma exposure induces both approach and avoidance behaviors. As such, it simultaneously hinders cooperative commitment and improves organizational commitment among aid workers. Furthermore, we find that supervisor support strengthens these relationships. As such, this study contributes to disaster management, integration, and leadership literature streams. It highlights environmental mechanisms to aid worker integrative behaviors and provides decision-making guidance to NGOs regarding where to direct support investments. Essay 2 combines religion with volunteer management. It employs

both social capital and person-organization fit theory to examine the effects of NGO religiousness and volunteer religious fit, on volunteer behaviors and operational performance. Utilizing two scenario-based video experiments, results indicate that NGO religiousness lessens social capital, negatively impacting volunteer behaviors and operational performance. Conversely, when NGOs and volunteers experience religious fit, it helps to minimize the negative effects of NGO religiousness and improve their operational performance. As such, this study contributes to the Humanitarian Operations literature by advising strategy around religious alignment and volunteer behaviors, retention, and operational performance. Essay 3 focuses on the vital role of private organizations in disaster relief and the importance of private-NGO collaboration. Employing resource dependence and matching theory, it examines mechanisms of private organization attitudes toward private-NGO partnerships. It also examines how the influence of these mechanisms may differ across disaster relief stages. Utilizing a scenario-based vignette experiment, results indicate that NGO resource capabilities motivate private organizations and their willingness to engage in private-NGO partnerships. As such, this study contributes to the private-NGO partnership literature and informs NGOs' strategy around private organization motivations, decision-making, and alliance formation. This dissertation produces insights across the humanitarian supply chain, informing important curiosities involving NGOs, private organizations, aid workers, and the customers/communities they serve.

Table of Contents

1. Introduction

Transformative research is a growing field of study that focuses on the creation of value that generates uplifting change for the greater well-being of individuals and communities as a whole (Blocker and Barrios, 2015; Boenigk et al., 2021). Within supply chain management, transformative supply chains concentrate on augmenting the welfare of communities by changing and enriching traditional organizational paradigms beyond economic measures (Mollenkopf et al., 2021a, 2021b). Humanitarian supply chains are well rooted within the transformative supply chain lens as they concentrate on the utilization of available resources to save lives and alleviate human suffering through the co-creation of value within the community (Beamon and Balcik, 2008; Obaze, 2019). While transformative research emphasizes the primary goals of humanitarian supply chains, the ability to create transformative value continues to be a challenging task to achieve, especially in a disaster relief context.

Humanitarian supply chains consist of several actors and stakeholder groups (e.g., donors, non-governmental organizations, and beneficiaries) that jointly concentrate on creating value by delivering aid to those in need (Kovács and Spens, 2009). Of these groups, non-governmental organizations (NGOs) are considered one of the main stakeholders of the global relief chain (Beamon and Balcik, 2008) as they often operate as the primary intermediary in the humanitarian network. NGOs are independent voluntary organizations that aim to provide aid to, empower, advocate for, and overall serve, those in need through both relief activities (response) and developmental activities (preparation) (Beamon and Balcik, 2008; Berger, 2003). Within the supply chain, NGOs source items through donations from upstream supply chain members. On the downstream side, NGOs work with a network of partner agencies to deliver much-needed resources (goods and services) to beneficiaries to produce the most effective outcome for the

community (Adem et al., 2018; Day et al., 2012). Due to their role as the key intermediary in delivering aid to beneficiaries, the competitive nature of their operating landscape, and the expectation to alleviate daily needs, NGOs operate in a prime position to create and deliver value within communities by procuring and delivering items.

NGOs are highly dependent on upstream entities that provide both products and funds necessary for the supply chain to operate (Day et al., 2012). This heavy reliance of downstream members on upstream entities for resources is the primary differentiator of a humanitarian supply chain's relational dynamics compared to commercial intermediaries. On the other hand, NGOs are often criticized for their inadequate performance and face increased pressure from other stakeholders (i.e., beneficiaries, society, and donors) to utilize resources more effectively and efficiently (Kovács and Spens, 2009). As a result, NGOs face mounting pressure to incorporate new strategies and techniques to improve the quality of their operations, and disaster relief outcomes, to balance the needs of donors with the needs of beneficiaries (Beamon and Balcik, 2008; Heaslip, 2015). In response, the literature and practitioners have turned to a service operations lens, focusing on improvements in customer service, as the best path forward (Heaslip et al., 2018b; Oloruntoba and Gray, 2009). Therefore, we examine how NGOs, and the humanitarian disaster relief (HDR) environment, can be better positioned to create value and improve the quality of disaster relief outcomes, by utilizing a service operations foundation and examining individual-level (aid workers/beneficiaries) factors of interest.

Among the main differentiators of services is that customer inputs are a necessary condition in which customers are co-creators of value and services involve the application of specialized competencies (knowledge and skills) through actions, processes, and performances (Sampson and Froehle, 2006; Vargo et al., 2004). While the overall goal of HDR operations is to save lives and

limit human suffering (Beamon and Balcik, 2008), this often occurs under high levels of uncertainty, with an acute time frame (time-sensitive) in which operations are often decentralized at the site and aid workers are responsible for making quick, critical decisions on behalf of their organizations (Akhtar et al., 2012; Besiou et al., 2014; Chandes and Paché, 2010). More so, it involves the convergence of many emergent or temporary organizations, which can be specialized in the type of disaster, region, or aid they provide, and NGOs that are asset-light and knowledge-intensive (Chandes and Paché, 2010; Day et al., 2012; Kovács and Tatham, 2009; Oloruntoba and Gray, 2009). With this in mind, HDR can not only be considered a service or service process, and NGOs as service organizations, but can specifically be seen as a pure service in which major production is conducted in the presence of customers (Dobrzykowski et al., 2016; Li and Choi, 2009), a professional service which is asset-light and knowledge/labor-intensive and is characterized by high customer contact, customization, and specialization (Brandon-Jones et al., 2016; Goodale et al., 2008; Lewis and Brown, 2012) and, most importantly, a transformative service in which organizations and aid workers engage in activities to increase the well-being and lives of those in need (Blocker and Barrios, 2015; Boenigk et al., 2021).

While the importance of services research has continued to gain traction in the humanitarian context, most HDR research takes a traditional value creation and organizational level perspective. The literature emphasizes NGO and upstream supply chain member relationships, focusing on donor organizations instead of beneficiaries as the primary customers of consideration (Heaslip et al., 2018; Oloruntoba and Gray, 2009). In addition, the literature also highlights logistics and the value of logistics service providers (LSPs) as the prime mechanism for improved relationships (Heaslip, 2013; Heaslip et al., 2018a; Obaze, 2019). Although we acknowledge that donors and LSPs represent important aspects of the service environment, we

contend that the current focus on humanitarian services is incomplete. In this dissertation, we expand the view of humanitarian services by focusing on the co-creation of value from an individual-level perspective, highlighting beneficiaries and aid workers as the primary targets of customer service (Vargo and Lusch, 2008). We look to draw attention to the importance of beneficiaries as important stakeholders in HDR operational outcomes. Furthermore, we explore how aid workers can operate as integration mechanisms that allow for the integration of beneficiaries into relief operations and give NGOs the ability to improve their customer service and create value within communities. For instance, Aid workers represent an invaluable resource in HDR settings. Since NGOs are knowledge, labor-intensive organizations, they depend on the human capital of aid workers to deliver aid. Additionally, disaster relief occurs in decentralized settings in which aid workers are tasked with making major decisions on behalf of NGOs (Akhtar et al., 2012a). Recognizing that HDR outcomes are an extension of the integrative relationships developed by aid workers (Tatham and Kovács, 2010a), literature has continued to push for the increased use of local expertise to improve the planning and execution of HDR (Perry, 2007; Willem and Buelens, 2009). Volunteers are especially important for NGOs as they operate as an inexpensive source of labor capacity, instead of paid staff, due to limited resources (Boezeman and Ellemers, 2008a). Given that the bulk of aid workers are recruited from the affected population (Cardozo et al., 2005), volunteers, in addition to local paid workers, are often most familiar with the needs of the affected population (Oloruntoba and Gray, 2009; Perry, 2007). Specifically, volunteers are among the first to arrive at the scene of disasters, gaining complex knowledge of the conditions and rescuing most disaster survivors (Zayas-Cabán et al., 2020). Furthermore, they also provide psychological support to beneficiaries through a sense of community and moral support, letting beneficiaries know that “they are not alone and don’t have to feel isolated or

abandoned" in their time of need (Zayas-Cabán et al., 2020). As such, unlike private organizations, volunteers and local workers have a unique and established connection with beneficiaries as members of their communities and social networks. Therefore, we consider this a crucial step forward as beneficiaries represent the ultimate customer or end-users of disaster relief aid (Oloruntoba and Gray, 2009). Furthermore, the value or service donors seek in return from NGOs is the knowledge that their donations are helping to relieve suffering and save the lives of beneficiaries (Oloruntoba and Gray, 2009).

Like NGOs, the increased need for private organizations to be involved throughout the disaster relief cycle gained traction due to the public sector's past failures and poor management of disasters (Diehlmann et al., 2021; Johnson et al., 2010). Furthermore, increased globalization and policy changes have made it difficult for governments to provide for citizens while increasing the power and influence of private organizations (Ballesteros et al., 2017). As such, while the public sector is traditionally regarded as the first source of relief, tasked with managing mitigation, preparedness, response, and recovery efforts (Forcadell and Aracil, 2021; Johnson et al., 2010), increased advocation for and responsibility have been placed on private organizations to become increasingly involved in disaster relief initiatives (Ballesteros et al., 2017). For instance, the Homeland Security Presidential Directive 7: Critical Infrastructure Identification, Prioritization, and Protection (2003), encourages the private sector to help identify, prioritize, and protect critical infrastructure and key resources (Johnson et al., 2010; CISA, 2003). Similarly, FEMA highlights the importance of and need for improved coordination with private organizations to successfully fulfill their mission of helping people before, during, and after disasters. While the public sector has recognized the importance of private organizations being involved in disaster relief, increases in globalization and digitization have also garnered increased pressure from society, specifically

customers, for private organizations to be more socially responsible in all aspects of their business (Chen et al., 2019; Maon et al., 2009). As such, corporate social responsibility, or corporate initiatives that aim to improve the economic, environmental, and social sustainability of communities, has become a major area of research and competitive advantage for private organizations (Chen et al., 2019).

Through the theoretical lens of approach-avoidance coping, social capital, person-organization fit, and resource dependence theory, we first highlight how environmental (Essay 1), and organizational (Essay 2) factors can affect various attitudes and behaviors that influence the integration of aid workers and their performance and, subsequently, an NGOs ability to deliver aid and create value. Finally, we address the role of upstream donors, specifically private organizations (Essay 3), as important relief actors. We illustrate how the resource capabilities of NGOs can affect the motivational investment of private organizations and influence private-NGO collaboration and partnerships. Furthermore, we examine how the influence of these resource capabilities may differ depending on the disaster relief stage.

The three essays inevitably tie back to the importance of cultivating value co-creation within humanitarian supply chains. This dissertation contributes to both literature and practice by taking a multilevel approach (i.e., micro, meso, macro) to examine value co-creation across each stage of the disaster relief stage (i.e., mitigation, preparedness, response, recovery) (Azadegan and Dooley, 2021; Beirão et al., 2016; Chandler and Vargo, 2011; Esper and Peinkofer, 2017; Leana and Pil, 2006; Payne et al., 2011; Serpa and Ferreira, 2019). Specifically, Essay 1 takes a micro-level approach, investigating how aspects of the disaster response (and recovery) environment influence aid workers. Essay 2 takes a meso-level approach, investigating how NGO organizational structures influence volunteer outcomes in preparation and response to disasters.

Finally, Essay 3 provides contributions to literature and practice which are particularly salient in the mitigation and preparation of disasters. It takes a macro-level approach, investigating how NGO characteristics influence inter-organizational outcomes. As such, this dissertation emphasizes the critical role of aid workers and private organizations in disaster relief outcomes, in addition to NGOs. Figures 1 through 3 in Appendix A illustrate an overview of the dissertation focus and essays.

Essay 1: *The Influence of Trauma Exposure on Internal Integration*

Introduction

Essay 1 examines how the unique characteristics of the humanitarian operational environment influence aid worker commitment and integrative behaviors. Approximately 450,000 humanitarian aid workers dedicate their lives daily to providing much-needed help during disasters worldwide (Hasenstab, 2018). These operations can be difficult to coordinate because disaster relief occurs in a decentralized context at the site of a disaster (Besiou et al., 2014). This increases aid worker autonomy which is an important consideration as they are often tasked with making major decisions on behalf of their organizations (Akhtar et al., 2012). As such, humanitarian outcomes are an extension of the integrative relationships developed by aid workers (Tatham and Kovács, 2010). This places more responsibility on aid workers and heightens the importance of understanding the effects of the operational environment on their behaviors toward internal integration. Much has been discussed about the importance of internal integration in humanitarian supply chains. Internal integration is defined as the extent to which intra-organizational operational processes are collaborative and synchronized (Ataseven et al., 2018; Flynn et al., 2010). While internal integration appears to be a primary detriment to disaster relief success, it is difficult to achieve (Altay and Pal, 2014; Bealt et al., 2016; Shaheen and Azadegan, 2020; Toyasaki et al.,

2017). Internal integration conducted by humanitarian aid workers at the individual level is an important but overlooked phenomenon in the literature (Makepeace et al., 2017)

Aid worker commitment is considered an important factor and driver of internal integration (Dubey et al., 2019). Commitment reflects an intention to continue on a course of action or activity (Dubey et al., 2019). It also operates as an important motivator for aid workers and their sustained involvement in relief work (McLachlin et al., 2009). While the humanitarian literature recognizes the importance of commitment, a lack of commitment is often cited as a considerable issue and barrier to internal integration and performance (Bealt et al., 2016; Maitland et al., 2009). This occurs in two distinct ways: cooperative commitment and organizational commitment. Cooperative commitment refers to the extent to which aid workers are willing to work with others, share resources, and maintain relationships even when it may not serve self-interest (Chatman and Barsade, 1995; Schmoltzi and Wallenburg, 2012). Cooperative commitment is difficult when aid workers lack the necessary authority, culture, skills, or competencies to engage in integrative activities. This may lead to a lack of dedication to, or prioritization of, integrative activities (Bealt et al., 2016; Maitland et al., 2009). In contrast, organizational commitment refers to an aid worker's emotional attachment and perceived obligation to remain with the firm (Allen and Meyer, 1990). This is important as the humanitarian literature highlights how high levels of aid worker turnover and short-term service can hinder the success of disaster relief operations (Korff et al., 2015; Van Wassenhove, 2006). This is because it prevents the accumulation of knowledge and hinders the formation of integration, leading to continuity issues (Bealt et al., 2016).

While commitment is regarded as a key factor in the success of disaster relief operations, issues regarding the lack of commitment among aid workers are often attributed to the challenges specific to the disaster relief environment. For instance, aid workers subject themselves to stressful

and demanding work environments (emotionally and physically), which can lead to burnout and negative attitudes, motivations, and perceptions of aid work (Korff et al., 2015; Van Wassenhove, 2006). One of the most notable challenges affecting the environment in which aid workers operate is that they are often at high risk of being exposed to traumatic events (Eriksson et al., 2001; Korff et al., 2015). As a first respondent highlighted, "*Trauma comes with the job, you're going to see it on a weekly and sometimes daily basis. You help who you can as best as you can and work through dealing with the trauma after*."[1] Trauma exposure is defined as experiencing a non-normative or highly distressing event(s) that potentially disrupts the self (McCann and Pearlman, 1990) which has inevitable effects on the commitment of aid workers toward disaster response activities. For example, many social workers and first respondents indicated substance abuse and antidepressant medication dependencies as coping strategies with post-traumatic symptoms after responding to Hurricanes Katrina and Rita (Tosone et al., 2015). Furthermore, with the increased occurrence of wildfires in California, the number of firefighters' suicides has almost tripled in the last ten years due to witnessing traumatic life-changing experiences (Lara, 2021). Overall, approximately 80% of humanitarian aid workers experience mental health issues, with almost half diagnosed with depression (Secret Aid Worker, 2015). As such, trauma exposure can increase the risk of mental health outcomes (Eriksson et al., 2001), hinder one's ability to maintain and develop relationships (Collins and Long, 2003), and decrease social functioning (Lahiri et al., 2017). It can also result in changes to personal characteristics, such as decreased compassion and empathy (Collins and Long, 2003; McCormack and Joseph, 2013), and can influence negative motivations toward reenlistment decisions (Korff et al., 2015).

[1] In-depth qualitative responses were collected from 300 humanitarian aid workers to develop practical insights into the research questions. Topics of interest included the trauma experience, commitment, and supervisor support.

While past research has focused on the negative outcomes of trauma exposure, an alternative view suggests that trauma exposure can provide a "challenge" that motivates aid workers resulting in positive outcomes. When viewed as challenge-related stress (stressful circumstances that have associated potential gains), trauma exposure may help with emotional resilience and enhance well-being, leading to increased satisfaction, commitment, and more effective disaster response (Boswell et al., 2004; Zayas-Cabán et al., 2020). Although trauma exposure affects the ability of aid workers to respond to the disaster, the influence of trauma exposure on cooperative commitment and organizational commitment, and internal integration remains unclear. Thus, we formulate the first research question: *How does trauma exposure affect aid workers' cooperative commitment, organizational commitment, and internal integration?*

While some humanitarian organizations actively address the problems associated with trauma exposure by providing counseling and assistance, resource limitations can constrain the ability of many humanitarian organizations to provide these services. As such, many aid workers move from one disaster to another while experiencing trauma that may affect their ability to respond and operate (Eriksson et al., 2009; Secret Aid Worker, 2015). For this reason, we focus on the concept of supervisor support to influence how aid workers cope with trauma exposure. An emergency manager mentioned that it is "*important to have support from all aspects of the organization to get the job done effectively*." Supervisor support represents an important source of help for aid workers as it is often considered an important mitigator of the effects of demanding, stressful, and traumatic work environments (Cardozo et al., 2012; Gruman and Saks, 2011). Supervisor support is defined as providing psychological resources from an aid worker's manager(s) intended to benefit their ability to cope with trauma (Cohen, 2004). While supervisor support is intended to benefit one's coping ability, the literature reveals mixed results regarding its

effects. This has been attributed to differences in how supervisor support is oriented (Borja et al., 2009). When supervisor support reflects an empathic attitude that encourages an aid worker's ability to process, internalize, and grow from the traumatic experience (i.e., an approach orientation), supervisor support is expected to result in positive outcomes and mitigate possible negative influences of trauma exposure. In contrast, supervisor support can also reflect an attitude that encourages an aid worker's ability to repress, compartmentalize, and withdraw from the traumatic experience, discouraging coping behaviors (i.e., an avoidance orientation) (Borja et al., 2009; Cohen, 2004; Roth and Cohen, 1986). Therefore, we formulate a second research question*: How does supervisor support orientation influence the relationships between trauma exposure, cooperative commitment, organizational commitment, and internal integration?*

We adopt the approach-avoidance theory to inform our research question, which suggests that individuals will utilize approach and avoidance strategies to cope in response to trauma exposure. Approach strategies reflect the internalization and assimilation of a traumatic event (Roth and Cohen, 1986; Skinner et al., 2003). Avoidance strategies reflect an individual distancing or disengaging themselves from the traumatic event or environment, physically or psychologically, preventing their ability to cope (Roth and Cohen, 1986; Skinner et al., 2003). We administered a 2x3 full factorial scenario-based vignette experiment using 300 aid workers to test the influences of trauma exposure and supervisor support on internal integration. This method is appropriate in this context as it allows us to observe and document the reactions, preferences, and decisions of real humans situated in complex phenomena that are not readily observable as they unfold (Li et al., 2013; Rungtusanatham et al., 2011). Our primary and post hoc analyses reveal important contributions to disaster relief management, integration, and support literature streams. First, our research design, whereby we tested approach and avoidance theories simultaneously (Roth and

Cohen, 1986), enabled us to find that both cooperative and organizational commitment mediates the relationship between trauma exposure and internal integration. (Bealt et al., 2016; Korff et al., 2015). This is an important finding, as trauma exposure does not affect internal integration in and of itself but through an aid worker's commitment. Furthermore, we find that both commitment forms have a non-linear convex relationship with internal integration. These findings further tease out the nuanced effects of aid worker commitment and highlight that internal integration is lowest when aid worker commitment is moderate. Second, we contribute to the literature by teasing out the nuanced effects of three important types of supervisor support: approach orientation, avoidance orientation, and no support (Borja et al., 2009). We find that both approach and avoidance supervisor orientations provide benefits when aid workers are exposed to trauma. These findings suggest that when exposed to trauma, providing any form of support from supervisors to aid workers is more beneficial than providing no support. As such, our findings contribute to the debate in the literature on the role of supervisor support in mitigating the effects of trauma in a humanitarian context (Borja et al., 2009; Eriksson et al., 2001; Lahiri et al., 2017).

Theoretical Framework and Hypotheses Development

Approach–Avoidance Theory

We use approach-avoidance theory as our theoretical lens to examine the influence of trauma exposure and supervisor support on commitment and internal integration within the disaster relief context. Approach–avoidance theory is rooted in the psychology literature and posits that people use approach and avoidance strategies to cope with stress.

"Approach" coping refers to cognitive and emotional activities that orient an individual toward the threat (Roth and Cohen, 1986). Approach coping brings the individual into closer contact with the stressful situation and allows for instrumental action and integrating the distress

into the self (Roth and Cohen, 1986; Skinner et al., 2003). Within the humanitarian literature, this can be described as sensitization, encounter, vigilance, and containment, and involves providing some degree of control concerning the situation by being attentive, problem-solving, and seeking support (Roth and Cohen, 1986; Skinner et al., 2003). Approach coping allows for assimilation and resolution of the trauma or threat. It is more effective in the long term than avoidance (Roth and Cohen, 1986), but its effectiveness depends on the controllability of the situation. When the situation is uncontrollable or provides no benefits from approach coping, this strategy increases stress, anxiety, and unproductive worrying (Roth and Cohen, 1986).

Meanwhile, "avoidance" coping refers to cognitive and emotional activities that orient an individual away from the threat (Roth and Cohen, 1986). Avoidance coping can be described as repression, disengagement, and denial, and involves distancing one's self from the situation, mentally or physically (Roth and Cohen, 1986; Skinner et al., 2003). For aid workers, avoidance can reduce stress and anxiety, and provide individuals with hope, courage, and safety (Arble and Arnetz, 2017; Skinner et al., 2003). It works well in uncontrollable situations and is most effective in the short run (Arble and Arnetz, 2017; Roth and Cohen, 1986). Consequently, avoidance coping can prevent taking appropriate actions to work through the trauma that leads to emotional numbness, intrusions, avoidance behaviors, and lack of awareness regarding the psychological symptoms of trauma exposure (Roth and Cohen, 1986). Table 1 in Appendix B shows the definitions used in this study. Figure 1 provides an overview of the conceptual framework used in this study and is discussed in detail in the next section.

Trauma and Cooperative Commitment

Commitment is a key driver and necessary element in the formation of integration (Dubey et al., 2019) and performance (Gruman and Saks, 2011). This study focuses on two forms of commitment

(cooperative and organizational) relevant to aid workers and their capacity to develop and maintain relationships internally. Cooperative commitment is the extent to which there is a willingness to work with others, share resources, and maintain the relationship even when it might not serve self-interest (Chatman and Barsade, 1995; Schmoltzi and Wallenburg, 2012). It can be viewed as an assessment of partnership stability and success, reflecting the willingness of partners to participate based on the identification of collective goals and values and to continue their relationship due to perceived positive benefits (Schmoltzi and Wallenburg, 2012). Humanitarian literature has highlighted how the development of distinct aspects of cooperative commitment represents important drivers of relief success. One stream of research highlights the importance of cooperative commitment through horizontal cooperation. For instance, Toyasaki et al. (2017) examined how partially participating humanitarian organizations can impact horizontal cooperation by negatively influencing the cooperative commitments of fully participating members, leading to an increase in the number of partial members and the eventual demise of the system. Schulz and Blecken (2010), also focus on horizontal cooperation, highlighting the benefits and impediments to its development. While cooperation has its benefits, it is often impeded. These hurdles are important elements of cooperative commitment; namely, the conviction to remain independent, mistrust and cultural differences, lack of resources, and general cooperation unwillingness (Schulz and Blecken, 2010). Another stream focuses on swift trust as it represents a fundamental element of stable relationships and a prerequisite to cooperative commitment that is particularly difficult to establish in a disaster relief context (Altay and Pal, 2014; Dubey et al., 2019; Shaheen and Azadegan, 2020; Tatham and Kovács, 2010). The literature on swift trust argues that the context (i.e., operational or organizational environment) in which individuals come together plays a major role in developing swift trust (Dubey et al., 2019; Tatham and Kovács,

2010). Overall, the literature on cooperative commitment highlights how the environmental context is a major determining factor in its development (Chatman and Barsade, 1995; Schmoltzi and Wallenburg, 2012).

Through the lens of approach-avoidance theory, we argue that trauma exposure represents a salient environmental factor, and how aid workers choose to cope with this exposure influences their cooperative commitment. Approach coping behaviors do not work well in uncontrollable situations, and can be hindered by sources of support (Roth and Cohen, 1986). Humanitarian aid is characterized by the unpredictability and suddenness of disasters, complexity, and a lack of resources (Chandes and Paché, 2010). These factors limit an individual's ability to control a situation (or their perceptions of control) and discourage the use of approach coping. For example, when emergency response providers face challenging, dangerous, and draining situations, it negatively affects their behavioral health, leading to increased conflicts among team members (SAMHSA, 2018). The literature highlights how high levels of behavioral and social uncertainty, risk, and different aspects of complexity can limit the formation of trust and cooperative commitment (Dubey et al., 2019; Schmoltzi and Wallenburg, 2012). Furthermore, a lack of resources often limits preparation and training (Van Wassenhove, 2006) which may drive the perception of even less control by aid workers when coupled with trauma exposure. Additionally, some traumas are so devastating that resolution can become extremely difficult, and approach coping cannot be realized (Roth and Cohen, 1986). Frightening situations, threats or being chased, shelling and bombing, and handling dead bodies are among the most traumatic events experienced by aid workers that can potentially affect their cooperative behaviors (Connorton et al., 2012). In addition to these experiences, they must also witness the suffering of traumatized victims while providing aid (Eriksson et al., 2001). Along with a lack of control, these factors may render

approach strategies ineffective or unavailable, increasing stress, anxiety, worrying, and the continued and increased use of avoidance (Roth and Cohen, 1986). One emergency fieldworker highlighted that "*Trauma can make one feel like suffering and/or battling with their brain, causing such people a lot of emotional traumas in life… in my workplace it has affected us [aid workers] so much*." As avoidance increases, compassion and empathy decrease, and the likelihood of emotional numbness, emotional and physical distance, social isolation, and similar behaviors become more prevalent (Roth and Cohen, 1986; Skinner et al., 2003).

We contend that trauma exposure, in this environment, will engender avoidance coping strategies and behaviors. Avoidance orients an individual away from the environment, as it involves the disengagement and distancing of the self mentally and physically (Roth and Cohen, 1986; Skinner et al., 2003). Overall, these behaviors may reduce an individual's motivation and willingness to work with other individuals and desire to maintain relationships, which are key aspects of cooperative commitment (Chatman and Barsade, 1995; Schmoltzi and Wallenburg, 2012). Therefore, we propose the following hypothesis:

H1: Trauma Exposure is negatively associated with cooperative commitment.

Trauma and Organizational Commitment

Organizational commitment is considered the binding force between an aid worker and the organization, reflecting the strength of their identification with and involvement in the firm (Macey and Schneider, 2008). It begets satisfaction, motivation, engagement, retention, and loyalty (Gruman and Saks, 2011; Macey and Schneider, 2008). Within humanitarian literature, organizational commitment is reflected in aid worker retention and motivation. In the for-profit sector, financial circumstances are considered the primary motivational factor for a worker's connection and willingness to work for an organization (Boezeman and Ellemers, 2008a).

However, humanitarian organizations lack the means to motivate workers financially and often find it difficult to attract and retain workers (Boezeman and Ellemers, 2008a). For this reason, organizational commitment is considered a key motivational factor and driver of retention for aid workers (Boezeman and Ellemers, 2008a; Macey and Schneider, 2008).

Organizational commitment is influenced by key aspects of the work environment. For instance, work experiences, social experiences, and organization investments are considered some of the main antecedents in developing organizational commitment (Meyer et al., 2002). Boezeman et al. (2008) studied antecedents to organizational commitment among aid workers. They posited that organizational commitment was a function of the level of pride in being a member of the organization stemming from their perceived importance and meaningfulness of the work. Finally, demanding work conditions and issues of trauma and security represent some of the primary influences on aid worker retention (Korff et al., 2015; Van Wassenhove, 2006).

Depending on the situation, certain stressors (e.g., trauma) can improve job satisfaction, loyalty, work or task performance, and other performance-related metrics (Boswell et al., 2004; Cavanaugh et al., 2000). One explanation for this is related to the concept of challenge-related stress. Challenge-related stress reflects work-related demands or circumstances that, although potentially stressful, have associated potential gains for individuals (Boswell et al., 2004; Cavanaugh et al., 2000). For example, Tassell and Flett (2011) found that health workers are motivated toward humanitarian relief work through the perceived importance of their work and the resulting engagement and satisfaction with the organization. Due to humanitarian organizations' altruistic nature and the motivations that drive individuals to relief work, we contend that trauma exposure can represent challenge-related stress that motivates aid workers to approach traumatic situations. For example, an emergency respondence provider highlighted

"*Trauma makes me down, I sometimes feel like quitting but the passion for humanitarianism keeps me going*." In turn, trauma can increase aid workers' self-esteem, and workplace engagement, and allow them to maintain satisfaction and commitment to their organizations.

For aid workers previously affected by a disaster, continual involvement in the relief effort can be an effective mechanism for coping that allows those individuals to begin the process of recovering from their traumatic experiences (Hamerton et al., 2015; Lowe and Fothergill, 2003; Zayas-Cabán et al., 2020). Given that humanitarian organizations recruit most aid workers from the host population (Cardozo et al., 2005), their work provides them with an opportunity to approach the recent trauma they experienced. Thus, the humanitarian organization brings them back into close contact with the stressful situation which allows them to integrate the distress into the self and begin the assimilation and resolution process necessary for coping. Combined with challenge-related stress, we contend that exposure to trauma may improve an aid worker's commitment to the organization. Therefore, we propose the following hypothesis:

H2: Trauma exposure is positively associated with organizational commitment.

Commitment and Internal Integration

Internal integration, a highly collaborative practice employed in humanitarian supply chain management (Makepeace et al., 2017), involves two or more actors working together to plan and execute supply chain operations (Richey and Autry, 2009). It embodies collaboration within an organization, characterized by the "simple interactions" that occur between and within teams (Makepeace et al., 2017), and emphasizes the goal of providing maximum value to customers at low cost and high speed (Flynn et al., 2010). Given the nature of disaster relief, the qualities and goals of internal integration highlight relevant factors necessary for its success. Flynn et al. (2010) showed that internal integration significantly improved operational and business performance.

Ataseven et al. (2018) showed that internal integration directly impacted the performance of food banks. Similarly, team cohesion is considered a primary factor for success (Moe and Pathranarakul, 2006). In the supply chain risk literature, internal integration engenders swift communication and mitigates the impact of disruptions, and improves recovery efforts (Riley et al., 2016). Finally, in a study on governance among humanitarian INGOs, their ability to sustain coordination depends on internal integration mechanisms (e.g., capacity, human resources, trust, and consensus) to support them (Beagles, 2021).

Internal integration focuses on information exchange, teamwork, building relationships, and close connections (Ataseven et al., 2018), which are qualities that can be impacted by trauma exposure, cooperative commitment, and organizational commitment. For example, Ataseven et al. (2018) showed that social capital, which emphasizes close relationships and partnerships, significantly drives internal integration. In addition, integration can be thought of as the extent to which separate parties work together cooperatively (Makepeace et al., 2017), as such it encompasses the importance of developing ongoing relationships. For example, humanitarian organizations in the Southeastern United States dedicate significant resources to developing trust and relationships to better prepare for future hurricane response (Shaheen and Azadegan, 2020). Cooperative commitment reflects increases in motivation and enhances the success of cooperation (Schmoltzi and Wallenburg, 2012). Overall, the literature states that the cooperative behaviors of individuals influence their actions towards and relationships with others. Highly cooperative individuals are more likely to collaborate with, consider the perspectives of, and enjoy working with other individuals (Lu et al., 2013), while low-cooperative individuals prioritize maximizing themselves at the expense of other individuals (Chatman and Barsade, 1995).

Studies in the management literature highlight how organizational commitment is directly related to concepts such as employee retention, engagement, work ethic, prosocial social behaviors, altruism, employee health and well-being, and other behavioral outcomes that are relevant to the humanitarian context and the development of integration (Macey and Schneider, 2008; Meyer et al., 2002). Furthermore, it is also considered a key element of performance management (Gruman and Saks, 2011; Meyer et al., 2002). Increases in organizational commitment allow individuals to be more attentive and open to other individuals, more connected and integrated into their environment (Gruman and Saks, 2011; Kahn, 1992). Overall, organizational commitment is important to increase retention, accumulate knowledge, and develop relationships and integration (Bealt et al., 2016).

Given that trauma affects cooperative and organizational commitment and both forms of commitment boost internal integration, we suggest that cooperative and organizational commitment are mediator links in the relationship between trauma and internal integration. Therefore, we propose the following hypothesis:

H3: (a) Cooperative commitment and (b) organizational commitment mediate the relationship between trauma exposure and internal integration.

Supervisor Support

Supervisor support is considered an asset for coping with or buffering the effects of stressors through improved social connections (Cohen, 2004). Given the traumatic, chaotic, and stressful nature of the disaster relief environment and the importance of developing integrative relationships, we surmise that supervisor support plays a vital role in relief work's behavioral and integrated outcomes. To examine the differing impacts of perceived support, we focus on the concepts of supervisor approach and supervisor avoidance orientations. A fit or match between the

organizational environment (i.e., supervisor support) and the approach/avoidance strategy of aid workers is necessary to improve commitment and internal integration (Venkatraman, 1989).

Supervisor approach orientation is the perception of helpful, positive reactions from the manager. For example, Eriksson et al. (2001) found that aid workers who experienced high levels of trauma exposure experienced lower levels of post-traumatic stress disorder (PTSD) when they received perceived support, compared to those who did not. Literature also highlights how supervisor approach orientation is negatively associated with burnout and emotional exhaustion (Lahiri et al., 2017) both of which are considered negative influences on organizational commitment and retention (Demerouti et al., 2001). As an emergency manager highlighted, *"[supervisor support] is very necessary for the success of every organization. Without it, to succeed will be hard and somehow unachievable*." Cardozo et al. (2012) showed that support was associated with lower depression, psychological distress, burnout, and increased satisfaction among aid workers.

Supervisor avoidance orientation is the perception of brisk, detached reactions from the manager. Supervisor avoidance orientation, even when well-intentioned, can hinder an aid worker's ability to approach and cope, leading to increased avoidance behaviors stemming from trauma exposure. Furthermore, supervisor avoidance orientation may hinder the challenge-related approach orientation effects of trauma exposure. When an approach strategy is inhibited, it leads to increased worrying and distress, which are non-productive and time-consuming (Roth and Cohen, 1986). Such an orientation may prevent individuals from assimilation and resolution of trauma exposure, leading to further use of avoidance strategies. This can increase the likelihood of emotional numbness, decreased compassion and empathy, distance and social isolation, and avoidance behaviors (Roth and Cohen, 1986; Skinner et al., 2003). This further hinders the aid

workers' ability to develop and maintain social and interpersonal relationships, limiting their ability and willingness to participate in cooperative and integrated ways. For example, McCormack and Joseph (2013) found that when support was perceived as invalid or lacking it hindered psychological growth and led to feelings of betrayal and self-doubt. Research also showed that when support is perceived as calloused, it becomes a workplace stressor that's detrimental to an aid worker's well-being (Brooks et al., 2015).

We differentiate between supervisor approach and avoidance orientation given that the effectiveness of supervisor support is dependent on the orientation support matching (or fitting with) an aid worker's needs (Cohen, 2004; Venkatraman, 1989). Therefore, we propose the following hypotheses:

> **H4:** Supervisor approach orientation will positively moderate the relationship between trauma exposure and (a) cooperative commitment and (b) organizational commitment.
>
> **H5:** Supervisor avoidance orientation will negatively moderate the relationship between trauma exposure and (a) cooperative commitment and (b) organizational commitment.

Methodology: Scenario-Based Experiment

We collected data to assess our hypotheses using a scenario-based role-playing (SBRP) experiment. We chose this method to examine how individuals respond to their operating environment (Eckerd et al., 2021). We used a 2x3, full-factorial, between-subjects design involving six versions of a descriptive vignette. An SBRP experiment uses varying versions of a descriptive vignette to convey scripted information about specified levels of factors of interest to human subjects (Rungtusanatham et al., 2011). These human subjects, or participants, assume a

defined role that includes cues to manipulate the levels of factors of interest and to control for factors not under investigation (Polyviou et al., 2018). Through this assumed role, participants react to scripted information and respond to questions regarding the dependent variables (as well as controls and checks) that mirror reality as closely as possible (Polyviou et al., 2018; Rungtusanatham et al., 2011). These reactions and responses are recorded and analyzed to yield empirical insights about the level of factors of interest, the nature of the participants' reactions and responses, and how the level of factors of interest affects the participants' reactions and responses (Rungtusanatham et al., 2011). Overall, this method facilitates the collection of judgments, preferences, and decisions of humans situated within complex phenomena that might not be readily observable as they unfold (Li et al., 2013; Rungtusanatham et al., 2011). Figure 2 in Appendix B presents an overview of the experiment development. Table 2 illustrates the experimental assignment.

Vignette Design

In the process of developing the six versions of the descriptive vignette, we followed procedures suggested in prior research (Rungtusanatham et al., 2011). We gathered insights from various scholarly articles across multiple disciplines in the pre-design stage. These insights described various disaster relief preparation and response situations (Dolinskaya et al., 2018), aid worker experiences with trauma exposure, supervisor support (Connorton et al., 2012; McCormack and Joseph, 2013), and relief supply chain job functions (Kovács et al., 2012). We used these articles to draft descriptive vignettes reviewed by four university faculty members from the US, all of whom are experts in operations management and have substantial prior research experience in behavioral experiments and vignette design. During the design stage, we applied the principle of form postponement, comprised of two separate but related modules of information: a common

module and an experimental cues module (Trentin and Salvador, 2011). To further enhance the realism and fidelity of our experimental design, we incorporated photographs in both the common modules and experimental cue modules. Increasing realism through visual stimulation in experiments is more effective in pursuing insights into real behavior (Morales et al., 2017). Furthermore, this is particularly important for "effects papers" in which the phenomenon involves responses to a specific context or investigates behavior (Morales et al., 2017). During the post-design stage, we conducted a pretest. We also invited expert judges, with varying levels of first-hand humanitarian experience, to evaluate the realism of the descriptive vignettes and the effectiveness of the manipulations. These judges found the descriptive vignettes to be realistic and the manipulations to be effective. Table 3 in Appendix B provides examples of the descriptive vignettes.

Common module: Baseline Context and Controls

In the common module of the descriptive vignettes, we relayed that: (a) participants assume the role of an aid worker, with a team, being deployed to a humanitarian aid camp in a country recently struck by a disaster; (b) the HO they work for specializes in providing medical aid, food, and water to disaster victims; (c) the goal of the HO is to provide medical care and support to victims and communities during the disaster in the hope of assisting the victims' recovery; (d) they are deployed to an impacted region, with their team, and are responsible for assessing the availability of current supplies, amount of additional supplies available from suppliers, demand for these supplies in the impacted region, allocating these supplies in the communities, obtaining additional supplies from suppliers when necessary, and possibly cleaning and conducting safe burials; and (e) this disaster is similar to their previous deployment, meaning that a wide variety of injuries and needs is expected within the communities. Finally, the participants were asked to read a journal

entry about their experiences from a previous deployment. Participants were also presented with visual stimulation within the journal entry - a picture depicting an activity described in the scenario. Refer to Table 3 for an example of the common module in Appendix B.

Experimental Module: Experimental Cues for Trauma Exposure and Supervisor Support

We developed six experimental modules that resulted in a 2x3, full-factorial, between-subjects experiment with trauma exposure manipulated at two levels and supervisor support manipulated at three levels. The descriptive vignettes contain written cues with pictures for the manipulated factors of trauma exposure and supervisor support. Trauma exposure is manipulated on two levels: the trauma exposure module and the no trauma, common module (baseline condition). We utilized the 'handling of dead bodies' as our trauma manipulation for two reasons. First, handling dead bodies reflects one of the most experienced sources of trauma for aid workers (Connorton et al., 2012). Second, it is salient that our manipulation is strong enough to cause an effect to ensure internal validity (Highhouse, 2009).

Supervisor support is manipulated on three levels: supervisor approach orientation, supervisor avoidance orientation, and no superior support (baseline condition). Supervisor approach orientation insinuates a helpful, upbeat reaction illustrated in the form of "empathy" from a supervisor (i.e., "Let's take some time to talk. I'll help you to…"). Supervisor avoidance orientation insinuates a downbeat, potentially damaging reaction illustrated in the form of "hostility" from a supervisor (i.e., "This isn't a big deal. You need to…"). Refer to Table 3 for an example of the experimental module in Appendix B.

Dependent Variables: Cooperative and Organizational Commitment and Internal Integration

At the end of the descriptive vignette, participants were presented with questions about potential variables of interest. Cooperative commitment (CC) was measured using an adapted, 7-point

Likert scale (1=strongly disagree to 7=strongly agree) that was previously validated (Schmoltzi and Wallenburg, 2012). It was originally designed to measure the cooperation commitment of an organization as perceived by its employees. We adapted this scale to examine a participant's perception of commitment based on the descriptive vignette and manipulation presented to them (Churchill, 1979). Organizational commitment (OC) was measured using an adopted, 5-point Likert scale (1=strongly disagree to 5=strongly agree) that was previously validated (Kundu and Lata, 2017).

Internal integration (II) was measured using an adapted, previously validated 7-point Likert scale (1=strongly disagree to 7=strongly agree) (Ataseven et al., 2018). In this study, we focused on internal integration and asked participants with emergency aid experience to assume the role of an aid worker in the field. We examined how exposure to trauma and support manipulations altered their behaviors and influenced their willingness and likelihood to integrate internally. For this reason, we adapted the internal integration scale to focus on how willing or likely participants are to integrate when planning for their next disaster deployment (Churchill, 1979).

Control Variables: Life Events Checklist and Work Experience

Literature has stated that multiple or continued exposures to trauma can increase the risk of incurring the negative effects of trauma exposure (Akinsulure-Smith et al., 2018; Cardozo et al., 2005; Lahiri et al., 2017). To control the effect of continued trauma exposure we utilized two control variables for our study, the Life Events Checklist (LEC) and Work Experience. The LEC was created to measure an individual's trauma exposure over their lifetime (i.e., trauma history). For example, the scale evaluates trauma exposure related to assault, combat, exposure to warzones, life-threatening illnesses, and overall human suffering. We adapted this measure using a 5-point scale (1=happened to me to 5=doesn't apply) (Gray et al., 2004). The only limitation of this scale

is that it does not capture repeated traumatic exposures to the same phenomenon. A respondent can only mark that they experienced or witnessed a specific traumatic event once. With this in mind, we also utilized Work Experience as a control variable. Given that our sample consists of full-time workers in emergency management and emergency service industries, work experience helps control for continued trauma exposure they may have experienced on the job. Table 4 in Appendix B provides detail of the measurement items. Table 5 illustrates the descriptive correlation statistics.

Participants and Experimental Procedure

A total of 331 participants were recruited via a professional survey research (PSR) firm to participate in this experiment (Schoenherr et al., 2015)**.** Using a PSR firm enabled us to select a diverse group of humanitarian respondents based on industry, current job roles and responsibilities, work experience, gender, and education. This allowed us to screen and only recruit highly experienced participants who met specific criteria such as working in a humanitarian/emergency management industry, having a job role related to emergency/disaster management, and having job responsibilities as field workers or executives.

It also permitted high-quality data collection with necessary tests for attention while reading the scenarios and responding to questions. We included three "attention filter" items in the form of completely different questions that indicated how much attention the respondent paid when answering the questions in the experiment. The first attention filter related directly to the vignette scenario, verifying whether respondents were attentively reading the scenario and questions ("You began the day by sterilizing and cleansing workstations: True/false"). The second attention filter ("Please select the opposite of angry out of the response choices below") was a general question to verify whether respondents had an adequate understanding of the English language and were

attentively reading each question. The third attention filter was conducted using a 7-point Likert scale (1=strongly disagree to 7=strongly agree) and asked participants to "select somewhat agree." Finally, cookie and IP address checks were used to assess the quality and appropriateness of the respondents. Each IP address was permitted to complete the experiment only once, and the PSR firm required cookies to prevent respondents from taking the survey a second time (Schoenherr et al., 2015). Among the 331 recruited participants, 300 passed attention and data quality checks.

Each of the 300 participants was randomly assigned to one of six versions of the descriptive vignette. This resulted in a balanced distribution of 50 responses per scenario (Eckerd et al., 2021; Lonati et al., 2018; Simmons et al., 2013). The data was collected for 1 month in the fall of 2021. Participants were instructed to assume the aid worker role and to read each descriptive vignette and accompanying questions carefully. After completing the descriptive vignette, they were asked to answer the OC, CC, and II questions, three attention check questions, and two manipulation check questions, all randomly ordered. Finally, participants were asked both realism and social desirability questions and participant demographics. We collected information regarding the participants' age, work experience, education level, industry, and job roles and responsibilities. Our sample consists of experienced humanitarian aid workers. Most participants operate in the emergency management, disaster relief field services industry (47.7%), with the remaining portion of participants from public safety (e.g., non-police/fire; 22.3%), law enforcement/firefighting (18.3%), and emergency healthcare (e.g., EMT, paramedics; 11.7%) industries. Furthermore, our sample was almost equally distributed across distinct functions of humanitarian aid workers. The sample consisted of participants with executive-level (24.3%), management-level (32.3%), and senior-level field (23.3%) job responsibilities. The remainder of our sample consists of entry-level

field personnel (17%), and volunteer and contract workers (3%). Table 6 in Appendix B provides the detailed demographic characteristics of the sample.

Experimental Checks

The realism checks consisted of two questions using a 5-point Likert scale (1=strongly disagree to 5=strongly agree) (Dabholkar, 1994). These questions asked the participants to measure how realistic the scenario and following decisions were and whether they had difficulty imagining themselves in the scenario. The results indicated that participants found the scenarios to be realistic (μ=4.26, σ=0.69) and had little difficulty imagining themselves in the scenarios (μ=3.93, σ=1.06). The trauma exposure manipulation checks asked participants to rate the extent to which they experienced a traumatic event using a 5-point Likert scale (1=strongly disagree to 5=strongly agree). We conducted manipulation checks for the photographs alone and the vignette overall. The analysis shows that the photograph utilized in the trauma module (μ=4.57, σ=0.68) produced its intended effect, compared to the photograph for the common module (μ=1.57, σ=1.01). The analysis shows that the overall trauma module (μ=4.21, σ=0.95) produced the intended effect, compared to the common module (μ=3.27, σ=1.16).

The manipulation checks for supervisor support asked participants to rate the extent to which they experienced supervisor support using a 5-point Likert scale (1=strongly disagree to 5=strongly agree). The analysis shows that the supervisor approach orientation (SPO) manipulation (μ=4.04, σ=0.94) was regarded as a supportive form of supervisor support. In contrast, the supervisor avoidance orientation (SVO) manipulation was viewed as a less supportive form of supervisor support (μ=2.67, σ=0.1.49), compared to the no supervisor support (NSO) baseline condition (μ=3.71, σ=1.06).

Demand characteristics are defined as features of the scenario-based experiment that may lead a participant to identify, understand, and respond based on what they perceive is expected by the researcher (Eckerd et al., 2021; Thomas et al., 2020). To ensure the validity of the scenario-based experiment, we employed several techniques to minimize the potentially unfavorable effects of demand characteristics and attain reliable responses from the subjects. First, a factor capturing social desirability biases was included as a control (Lorentz et al., 2012). The measurement of social desirability bias was conducted using a five-item scale adopted from the Marlowe–Crowne scale (Loo and Loewen, 2004). The mean does not appear to be higher than expected (μ=3.8, σ=0.46). Second, all participants were guaranteed anonymity, and no identifying information was collected that could potentially implicate them. Additionally, clear instructions were given that there were no "right" or "wrong" answers (Thomas et al., 2020). Furthermore, we included control conditions for both manipulated variables that provided a baseline level of the manipulated variable to observe participants' behaviors in the absence of the treatment (Lonati et al., 2018). Finally, a randomized between-subjects factorial design ensured that the experiment was less susceptible to demand characteristics (Thomas et al., 2020) as well as self-selection (Antonakis et al., 2010).

Finally, we examined the potential for common method bias. We conducted a single-factor confirmatory test in which an unmeasured latent factor is linked to each item in the measurement model (Podsakoff et al., 2003). Results showed that all lambda values for the substantive variables remained statistically significant on its intended latent construct. Additionally, the average variance explained for the substantive constructs was greater than (0.38) when linked to the method latent factor (0.06).

Analysis and Results

Trauma Exposure, Cooperative and Organizational Commitment, and Internal Integration

We use Hierarchical Multiple Regression in SPSS version 26 to test the direct effect of trauma on CC and OC while including all the control variables. H1 posits that avoidance strategies are used as the primary form of coping due to the lack of resources and control experienced in a disaster environment. Avoidance theory suggests a negative relationship between trauma exposure and CC. Results show that H1 was moderately supported (β= -0.18, t= -1.91, *p*=0.057), providing evidence that trauma exposure may lead to decreases in CC. H2 posits that trauma exposure operates as a challenge-related stress motivating an approach coping strategy, and thus, a positive relationship between trauma exposure and OC. Results show that H2 was supported (β=0.26, t=2.80, *p*=0.005). Given that trauma exposure has a moderate but negative direct effect on CC and a positive direct effect on OC, we test the direct effect of trauma exposure on II to enhance our understanding of these relationships. The results show that trauma exposure is not a significant predictor of II (β= -0.14, t= -1.55, *p*=0.123). Table 7 in Appendix B illustrates the direct effects results in detail.

H3a and H3b posit that CC and OC mediate the relationship between trauma exposure and II. To test H3, we utilize Hayes Process Model 4 (95% confidence interval) which allowed us to formally test the mediation effects of CC and OC while also testing their direct effects on II and the direct effects of trauma exposure on all variables.

We first focus on H3a, analyzing CC as a mediator. We find that CC has a positive, significant direct effect on II (β=0.31, t=6.12, CI=0.21 to 0.41). However, the indirect effect of trauma exposure on II, mediated by CC, is negative and non-significant as zero is in the 95% confidence interval (β= -0.06, CI= -0.12 to 0.002). However, the indirect mediation effect is significant for a 90% confidence interval (β= -0.06, CI= -0.11 to -0.01) providing weak evidence

to support H3a, revealing CC as a full, indirect-only, mediator between trauma exposure and II (Zhao et al., 2010).

Next, we analyze H3b, analyzing OC as a mediator. We find that OC has a negative, significant direct effect on II (β= -0.23, t= -4.41, CI= -0.34 to -0.13), and the indirect effect of trauma exposure on II, mediated by OC, is negative and significant as zero is not in the 95% confidence interval (β= -0.06, CI= -0.11 to -0.02). This supports H3b and highlights OC as a full, indirect-only, mediator between trauma exposure and II (Zhao et al., 2010). Table 8 in Appendix B illustrates the mediation results in detail.

Supervisor Support Moderation

To examine the potential moderation effects of supervisor support in our model, we utilize the Hayes Process models 1 and 8. This approach allows us to analyze the direct effects of the moderator and its interaction effects on the outcome variables. It also provides Johnson-Neyman (J-N) outputs which illustrate the conditional effects of trauma exposure on CC, OC, and II at key levels of the moderator.

First, we address Cooperative Commitment (CC) by examining the moderating influence of supervisor support on the relationship between trauma exposure and CC. Specifically, we hypothesized that supervisor approach orientation (SPO; H4a) would positively moderate the relationship, while supervisor avoidance orientation (SVO; H5a) would negatively moderate. The interaction between trauma exposure and both SPO (β=0.36, t=1.55, CI= -0.10 to 0.81) and SVO (β=0.36, t=1.53, CI= -0.10 to 0.81) are non-significant for CC. We find that the negative direct relationship between trauma exposure and CC is conditional, only significant when there is no supervisor orientation (NSO; β= -0.42, t= -2.55, CI= -0.74 to -0.10). The indirect effect of trauma exposure on II via CC is also conditional. The indirect effect is only significant (negative) when

there is NSO (β= -0.13, CI= -0.25 to -0.03). Overall, the results provide partial support for H4a in that the negative effect of trauma exposure becomes non-significant when SPO is present (compared to NSO). The results fail to support H5a related to the moderation of SVO. Table 9 in Appendix B illustrates the moderation results in detail.

Next, we address Organizational Commitment (OC) by examining the moderating influence of SPO (H4b) and SVO (H5b) on the relationship between trauma exposure and OC. Counter to our hypothesis, we find that SPO has a negative moderating effect on the relationship between trauma and OC (β= -0.45, t= -1.94, CI= -0.10 to 0.01). The moderation effect of SVO is non-significant (β= -0.24, t= -1.03, CI= -0.69 to 0.22). We find that the positive direct relationship between trauma exposure and OC is conditional and only significant when there is NSO (β=0.49, t=3.03, CI=0.17 to 0.81). The indirect effects of trauma exposure on II via OC are also conditional. The indirect effects are only significant (negative) when there is NSO (β= -0.11, CI= -0.20 to -0.04). Overall, the results provide partial support for H5b in that the positive effect of trauma exposure becomes non-significant when SVO is present (compared to NSO). The results fail to support H4b related to the moderation of SPO. See Table 9 in Appendix B.

Post Hoc analysis

Quadratic Relationships

We anticipated that both CC and OC would have a positive relationship with II. While our hypothesis was supported for CC, OC is shown to have an unexpected negative effect on II. This prompted us to probe the relationship further by investigating the potential for polynomial relationships among CC, OC, and II by testing for first and second-order effects emanating from CC and OC to II. We utilize Hierarchal Regression and interaction techniques to plot polynomial relationships (Miller et al., 2013).

For CC, we find that it does have a quadratic relationship with II. In the quadratic model, results show that CC has a non-significant, negative effect on II (β= -0.52, t= -1.25, *p*=0.212) while CC2 has a significant, positive effect (β=0.08, t=2.03, *p*=0.044). J-N interaction plots aid in interpreting this relationship and highlight a convex relationship between CC and II. It shows that CC has a negative non-significant relationship with II until it reaches 4.6/7, or 23.2% below the mean (μ=5.99), at which point CC has a positive association with II. Together the results indicate that CC is not detrimental to II, even at low levels, and can only aid in improving II as CC increases. See Figure 3 in Appendix B.

For OC, we find that it also has a significant quadratic relationship with II. In the quadratic model, results show that OC has a significant, negative effect on II (β= -0.99, t= -4.44, *p*<0.000) while OC2 has a significant, positive effect (β=0.16, t=3.46, *p*=0.001). J-N interaction plots aid in interpreting this convex relationship between OC and II. Unlike CC, we find that the negative relationship between OC and II is significant until OC passes 2.78/5 or 33% above the mean (μ=2.09), at which point the relationship is non-significant until OC reaches 4.31/5 or 106% above the mean, where the relationship is significant and positive. Thus, unlike CC, low levels of OC can be detrimental to II. Only high levels of OC are beneficial to II. See Figure 4 in Appendix B. Table 10 in Appendix B provides the quadratic results.

Discussion

Our study makes several important contributions to the literature on humanitarian and disaster relief operations. First, we extend the discussion on the development of integration at the individual aid worker level, highlighting the importance of internal integration and aid workers as primary decision-makers in disaster relief settings (Altay and Pal, 2014; Ataseven et al., 2018; Moshtari, 2016) Next, we address the calls for deeper theory-driven studies in humanitarian

operations by integrating the psychological theory of approach-avoidance into the disaster relief context to examine how specific aspects of the environment (i.e., trauma exposure) in which aid workers operate affects their behaviors and internal integration (Roth and Cohen, 1986; Starr and Van Wassenhove, 2014). Finally, we evaluate the moderating influence of supervisor support on these relationships by utilizing the approach-avoidance theory (Cohen, 2004; Yan and Pedraza-Martinez, 2019). A subject pool of 300 actual humanitarian aid workers completed scenario-based vignette experiments in garnering several key contributions.

Contributions to theory

Our study makes four key theoretical contributions. First, our study extends the approach-avoidance and humanitarian literature streams by examining the influence of trauma exposure on aid worker behaviors. We find evidence that trauma exposure induces both approach and avoidance coping strategies that influence aid worker commitment behaviors simultaneously. Specifically, our study shows that approach and avoidance strategies have varying effects on different forms of aid worker commitment. In response to trauma exposure, aid workers engage in avoidance behaviors that negatively impact their commitment to cooperation. This is consistent with the behaviors that encompass avoidance such as repression of emotions, compartmentalization of feelings, and withdrawal from relationships (Roth and Cohen, 1986; Skinner et al., 2003). Our findings align with the logic that these behaviors reduce one's interest in and commitment to cooperation. However, aid workers also utilize approach strategies that motivate their commitment to the organization. This is consistent with the behaviors that encompass approach strategies such as processing emotions, internalizing a heightened sense of purpose, and growing a deeper sense of one's psychological self (Roth and Cohen, 1986; Skinner et al., 2003). Our findings are consistent with the logic that these behaviors align the aid worker

with the mission of the humanitarian organization. Overall, these findings are in line with the approach-avoidance literature, which highlights that approach and avoidance behaviors are not mutually exclusive, but occur simultaneously, in different variations, depending on the situation (Roth and Cohen, 1986).

Second, our study provides contributions at the intersection of the humanitarian and integration literature by providing evidence that cooperative and organizational commitment are important mechanisms for aid workers in achieving integration (Ataseven et al., 2018). We find that both commitment forms operate as antecedents to internal integration and mediate the relationship between trauma exposure and internal integration. Specifically, for cooperative commitment, we find that when aid workers are committed to cooperation, they are more willing to integrate with their teams. Unfortunately, trauma exposure significantly decreases cooperative commitment and has an indirect negative impact on internal integration. This contributes to the literature intersecting psychology and humanitarian operations which suggests that demanding and traumatic environments engender avoidance behaviors (Collins and Long, 2003; Lahiri et al., 2017; McCormack and Joseph, 2013). These adverse aid worker behaviors and their deficiencies in commitment act as barriers to integration (Bealt et al., 2016; Maitland et al., 2009).

Next, regarding organizational commitment, our study contributes to the aid worker motivation and retention literature, showing that organizational commitment is essential to the development of internal integration (Bealt et al., 2016). This is because we find that when aid workers are committed to the organization, they are more willing to integrate with their teams. However, unlike cooperative commitment, trauma exposure significantly increases organizational commitment while still displaying an indirect negative impact on internal integration. The linking of these three variables and the subsequent findings makes an important contribution as the

literature addressing how traumatic environments will influence aid workers' organizational commitment is inconsistent. Some studies suggest that trauma exposure induces negative motivations and perceptions of aid work that reduce organizational commitment (Korff et al., 2015; Van Wassenhove, 2006). Other studies highlight trauma exposure as a primary motivator for engagement and organizational commitment (Boswell et al., 2004; Tassell and Flett, 2011; Zayas-Cabán et al., 2020). Our findings advance this discourse by illuminating trauma exposure as a motivator of organizational commitment. We also reveal the key mediating role of organizational commitment in achieving integration behaviors as well as the indirect effects of trauma in achieving integration.

Third, we contribute to the literature by unpacking the nuanced relationships among cooperative commitment, organizational commitment, and internal integration. We highlight that the relationships between both forms of commitment and internal integration are not linear but quadratic and convex. Specifically, we find that cooperative commitment is only beneficial to internal integration (Ataseven et al., 2018; Chatman and Barsade, 1995; Schmoltzi and Wallenburg, 2012). Even when it is low, cooperative commitment does not significantly hinder internal integration. However, once cooperative commitment reaches 4.6/7, our plots illustrate a significant and increasing positive effect. Given that its mean is 5.99, these results indicate that even when an aid worker's cooperative commitment is 23.2% below the mean, it begins to improve integrative behaviors. Also of importance, we do not observe a 'floor' effect in that aid workers with low cooperative commitment (0 to 76.8% of the mean) do not significantly negatively affect internal integration. In contrast, low levels of organizational commitment are detrimental to internal integration. More importantly, its negative influence significantly persists well past its mean (μ=2.09/5), until it reaches 33% above the mean (2.78/5). Furthermore, the benefits of

organizational commitment are not realized until it reaches high levels (4.31/5; 106% above the mean). Summarizing, while cooperative commitment only benefits integration behaviors, organizational commitment may provide a dark side of sorts in that while elevated levels aid in achieving integration, low levels can be detrimental to humanitarian organizations (Ataseven et al., 2018; Korff et al., 2015; Urrea and Yoo, 2023).

Limitations and Future Research

This study has the following limitations that future research ought to investigate. First, the primary focus of our study is on full-time aid workers as our sample. While utilizing an experienced aid worker sample has its benefits, we do recognize that humanitarian organizations also rely heavily on volunteers (unpaid workers) (Boezeman and Ellemers, 2008b; Waikayi et al., 2012). We contend that it would be useful to replicate our study among a sample of both experienced and potential or non-experienced volunteers to see if our findings hold and if there are any potential differences among the groups. Second, our study focuses specifically on the effects of primary trauma exposure (i.e., direct danger or direct experiences) and did not account for the impact of secondary or vicarious trauma exposure (i.e., witnessing others suffer) (Connorton et al., 2012). Literature states that aid workers are exposed to both types of trauma exposure. While primary experiences may elicit stronger reactions, secondary trauma exposure can also produce similar effects (Connorton et al., 2012; Eriksson et al., 2001; Tosone et al., 2015). Humanitarian literature highlights that research regarding the effects of secondary trauma exposure is limited (Eriksson et al., 2001) and aid workers must contend with the combination of both primary and secondary trauma exposure (McCormack and Joseph, 2013). We contend that future research should examine the effects of secondary trauma exposure, how it compares to primary trauma exposure, and how the combination of both influence commitment and integration. We also recognize that there are

multiple sources of trauma that aid workers may be exposed to. We had reasonable rationale and motivation from industry to study the effect of trauma operationalized as exposure to handling dead bodies. However, other sources of trauma may exist (e.g., threats or being chased, sexual assaults, kidnapping, etc.) that may have differential effects on aid workers and may be worthy of future studies. We also recognize that there may be differential effects concerning the short- and long-term effects of trauma exposure. In our study, we focused on an aid worker's immediate reaction to a single trauma exposure and controlled for past trauma experiences. Literature does highlight how multiple or continued trauma exposures increase the risk of incurring negative effects (Akinsulure-Smith et al., 2018; Cardozo et al., 2005; Lahiri et al., 2017). Furthermore, the approach-avoidance theory recognizes that approach coping may work better in the long term, while avoidance coping may be more beneficial in the short term (Roth and Cohen, 1986). We contend that it would be advantageous for future research to examine these time-related effects.

Similarly, we also recognize that there are multiple sources and types of support. In our study, we focus on supervisor support. However, research also shows that coworkers and aspects of formal support, such as perceived organizational support, counseling, and assistance, can also operate as effective sources of support and moderate the effects of trauma and stress (Cardozo et al., 2012; Kundu and Lata, 2017; Shang et al., 2022). Furthermore, we also focus on the combination of emotional support (i.e., expressions of empathy, trust, caring, and reassurance) and informational support (i.e., advice, suggestions, and information intended to help cope with problems) (Cohen, 2004; Heaney and Israel, 2008; Yan and Pedraza-Martinez, 2019). The literature highlights how there are other types of support, besides emotional and informational support, which can be used to influence individuals. These types of support include instrumental (material aid) and appraisal support (information used for self-evaluation; constructive feedback)

(Cohen, 2004; Heaney and Israel, 2008). Literature contends that instrumental support is not a viable source of support for humanitarian organizations, as they lack the resources to motivate workers through material means (Boezeman and Ellemers, 2008a). Future research should examine how appraisal supports moderate's trauma and stress and influences aid worker behaviors, and how emotional and instrumental support influences these relationships separately. Finally, we utilize internal integration as our outcome variable of interest. Integration consists of internal and external integration. Future research should replicate our study and examine if the relationships between trauma exposure, commitment, and support produce similar effects on external integration, in both suppliers and customers.

2. Essay 2: *Faith in Disasters: The Influence of Religion on Humanitarian Relief Operations*

Introduction

Essay 2 examines the role of religion in humanitarian operations by investigating its influences on volunteer behaviors and performance. The primary goal of humanitarian supply chains is to save lives and reduce human suffering by assisting those in need (Beamon and Balcik, 2008). This goal is often challenging, as the need for relief may be highest when a society's ability to function is disrupted, and it cannot cope with the needs of its people (Day et al., 2012; Kovács and Spens, 2009). To adequately face disruptions and cope with the needs of individuals, societal systems depend on the support of non-governmental organizations (NGOs). These entities differ from other humanitarian supply chain stakeholders as they are voluntary and independent of the government, operating under a public mission to provide humanitarian services to all in need (Beamon and Balcik, 2008; Berger, 2003). NGOs are the main drivers of the global relief chain (Beamon and Balcik, 2008). As the number and severity of disruptive events, people in need of aid, and competition for scarce resources continue to increase, NGOs face increased criticism and pressure

from donors and society to improve the effectiveness of their relief operations (Kovács and Spens, 2009).

Owing to funding limitations, NGOs are highly dependent on the human capital of volunteers (Boezeman and Ellemers, 2008; Rosenzweig and Roth, 2007). For example, the American Red Cross utilizes over 90% of volunteers in its relief efforts, with at least 30% having no prior aid experience (American Red Cross, 2020). Volunteers offer inexpensive labor and operational capacity (Perry, 2007), providing valuable knowledge of and relationships within their communities. They are often among the first to arrive at the disaster scenes, gathering knowledge of the conditions before trained professionals arrive (Zayas-Cabán et al., 2020). However, while volunteers are a vital resource for NGOs, they may also represent a barrier to performance. For instance, difficulties in maintaining volunteer satisfaction and commitment induce high volunteer turnover. This phenomenon creates continuity issues that limit the assimilation of knowledge, the ability to establish collaborative partnerships, and the effectiveness and efficiency of humanitarian relief operations (Bealt et al., 2016; Dubey et al., 2016; McLachlin et al., 2009). Since NGOs mostly execute their operations through volunteers, recent humanitarian literature has highlighted the importance of their behaviors and performance (Korff et al., 2015; Salem et al., 2022). A better understanding of how NGO factors may increase or diminish volunteer satisfaction and commitment (Paciarotti and Valiakhmetova, 2021; Urrea and Yoo, 2023), collaborative behaviors (Zayas-Cabán et al., 2020), and performance is crucial. Therefore, this study focuses on how the unique characteristics of the relief environment influence volunteer operational outcomes, given their critical importance to NGO performance (Dubey et al., 2016; Korff et al., 2015; Salem et al., 2022).

The religiousness of NGOs is a unique factor in humanitarian operations that influences volunteers. Faith-based NGOs account for approximately 60% of USA-based international development organizations, considerably contributing to domestic and international humanitarian supply chain management (Heist and Cnaan, 2016). Historically, the "supernatural" or "sacred" has been used to explain adverse events in life (Aten et al., 2019). When events challenge the convictions and beliefs of people and threaten their sense of meaning, they often turn to religion to restore it. Individuals often refer to negative experiences as an "act of God" or "fate" that may occur as "God's plan" or "a test" to cope with these events. Religious communities are considered the largest and, most often, the best-organized civil institutions in the world (Berger, 2003). Faith-based NGOs may access and leverage established networks to become socially embedded in communities at all levels (local to international) (Ager et al., 2015; Berger, 2003). They may encourage hope and trust in their communities and networks through shared values, norms, beliefs, and traditions. Hence, faith-based NGOs may help determine and experience higher levels of desired behavioral and operational performance outcomes than non-faith-based NGOs.

This study utilizes religiousness to investigate religion in volunteer settings influences volunteer perceptions of NGOs and operational outcomes. Religiousness is defined as adherence to an organized system of beliefs, rituals, and practices of a specific institution or tradition (Karakas, 2010; Stratta et al., 2013). An interaction between religious identity and religiosity characterizes it. Religious identity reflects a social identity that involves membership in a specific religious group. It relies on affiliation with a particular religious group that incorporates their beliefs, values, and practices (Héliot et al., 2020). Religiosity is defined as the endorsement of a religion's doctrine and values (Héliot et al., 2020). It reflects how devoted an individual is to religion or the extent to which an organization's religious identity defines its organizational

structure, strategies, and services (Berger, 2003). Thus, this study examines the interaction between NGO religiousness and volunteer religiousness. While the literature emphasizes that religiousness often garners a sense of community and trust among its members, it may also feel exclusive and alienating for those outside its social group. Religiousness may generate feelings of "more-virtuous-than-thou" or religious pride, in which organizations and individuals conceive themselves as better than or superior to others. They may develop egocentric or prejudiced attitudes and behaviors and utilize moral justifications and dehumanization, leading to unethical decisions and behaviors (Chan-Serafin et al., 2013).

Thus, this study formulates the following research questions: *How does the religiousness of NGOs influence social capital and volunteer satisfaction, commitment, and performance? How does volunteer religiousness influence these relationships?* To address these questions, we rely on the theoretical frameworks of social capital theory (SCT) and person-organization (PO) fit theory. SCT views knowledge or intellectual capital as the most salient resource for gaining a sustainable competitive advantage (Ataseven et al., 2018; Nahapiet and Ghoshal, 1998). It postulates that organizations gain intellectual capital through social capital from social networks or relationships (Krause et al., 2007; Subramaniam and Youndt, 2005). Ultimately, social capital represents a competitive advantage that facilitates integrative behaviors, increasing efficiency and effectiveness (Ataseven et al., 2018; Carey et al., 2011; Lawson et al., 2008; Nahapiet and Ghoshal, 1998). Based on SCT, we examine how religiousness differentiates faith-based NGOs from non-faith-based NGOs regarding the development of social capital in volunteers and their influence on volunteer behaviors and performance.

PO fit posits that behavior and attitudes result from the congruence and integration of values between people and organizations (Kristof-Brown et al., 2005). It reflects the degree to

which people and organizations share values, goals, and priorities (Erdogan et al., 2020). As fit increases, shared understanding, trust, communication, satisfaction, and engagement are enhanced, improving performance outcomes. Thus, based on PO fit, we examine how volunteer religiousness moderates the effect of NGO religiousness.

To assess the influence of religiousness, we administered two 2 × 1 full factorial scenario-based video experiments involving 110 students and 198 volunteers. This method allows us to observe the behaviors and decisions of real individuals regarding a complex phenomenon that is not easily or readily observable. The proposed approach enables us to capture the humanitarian volunteer service scenario better than a written vignette (Eckerd et al., 2021; Li et al., 2013; Rungtusanatham et al., 2011; Victorino et al., 2013). Overall, the study's results show that NGO religiousness negatively influences the development of social capital, which drives volunteer attitudes, behaviors, and performance. In contrast, volunteer religiousness plays a significant and positive role in the effects of NGO religiousness.

This study makes four critical contributions to humanitarian relief operations, volunteer management, religion and diversity, and social capital and service operations literature. First, contrary to expectations, our findings show that NGO religiousness hinders the development of social capital, satisfaction, commitment, and performance among volunteers, both directly and indirectly (Villena et al., 2011). These results inform SCT and align with the literature suggesting that faith-based NGOs may be perceived as having ulterior motives for proselytization, converting locals, and gaining new supporters, which can hinder trust among volunteers and communities (Heist and Cnaan, 2016; Nahapiet and Ghoshal, 1998). Second, we contribute to SCT and PO fit by revealing that when the religiousness of volunteers and NGOs match, social capital and volunteer satisfaction, commitment, and performance significantly increase (Bealt et al., 2016;

Korff et al., 2015). Specifically, religious fit does not generate positive social capital and volunteer outcomes but offsets the adverse effects of NGO religiousness. Third, we contribute to service operations literature by examining the service profit chain framework in a unique humanitarian volunteer service setting. In line with Heskett et al. (1994), we confirm the importance of satisfaction in improving volunteer outcomes. In addition, we highlight boundary conditions that emphasize a crucial intersection between SCT and the service profit chain and its impact on volunteer outcomes (Ataseven et al., 2018; Nahapiet and Ghoshal, 1998). Finally, we contribute to the literature and practitioners on the intersection of workplace diversity and operations management (Héliot et al., 2020). For example, Karakas et al. (2010) highlights how using spiritual or religious beliefs may exclude others in the workplace and undermine respect and inclusiveness. We extend their research by introducing the issue of religious diversity to the humanitarian volunteer context and linking these factors to operational performance outcomes (Paciarotti and Valiakhmetova, 2021; Urrea and Yoo, 2023; Zayas-Cabán et al., 2020).

Theoretical Framework and Hypothesis Development

We draw on SCT to investigate how NGO religiousness, a unique and crucial organizational characteristic, affects volunteer attitudes and performance vis-à-vis the social capital it engenders in volunteers (Nahapiet and Ghoshal, 1998). These phenomena account for the religious fit between volunteers and NGOs, as explained by PO fit theory (Cable and Judge, 1996; Kristof-Brown et al., 2005). Figure 1 in Appendix C illustrates the study's theoretical framework.

Social Capital Theory

SCT contends that social capital is developed through structures that facilitate individual attitudes and behaviors, the efficiency of action, and the effective use of knowledge (Ataseven et al., 2018; Nahapiet and Ghoshal, 1998). Social capital comprises three critical dimensions: structural,

relational, and cognitive embeddedness between a volunteer and an NGO (Nahapiet and Ghoshal, 1998; Roh et al., 2013). Structural embeddedness revolves around the connections or strength of social ties between volunteers and NGOs (Nahapiet and Ghoshal, 1998; Villena et al., 2011). Relational embeddedness describes personal relationships that develop through interactions over time (Villena et al., 2011). These relationships influence individual behavior through social motives, such as trust, respect, sociability, approval, and prestige (Cousins et al., 2006; Lee et al., 2011; Lu et al., 2021; Nahapiet and Ghoshal, 1998). Finally, cognitive embeddedness focuses on shared representations, interpretations, and meanings (Villena et al., 2011). This dimension alludes to the influence of shared languages, narratives, and values (Nahapiet and Ghoshal, 1998). This relates to faith-based NGOs as religiousness creates a unique connection between a volunteer and an NGO through shared values, trust, and a sense of belonging (Héliot et al., 2020).

Faith and Social Capital

Faith-based NGOs are formal organizations whose identity and mission are derived from religious teachings and traditions (see Table 1 in Appendix C for variable definitions) (Berger, 2003). They operate on a non-profit, independent, and voluntary basis to promote and realize collective notions about the public good (Berger, 2003). Religion plays a vital role in the success of faith-based NGOs by providing them access to extended and established like-minded network partners (such as volunteers), access to resources and information, and embedding them into the communities they intend to serve. Several studies within the humanitarian operations management literature have provided evidence that the level of organizational religious orientation is a crucial factor in disaster relief (Azmat et al., 2019; McLachlin et al., 2009). Azmat et al. (2019) show that faith-based and non-faith-based relief organizations treat critical success factors for disaster relief operations differently. Similarly, McLachlin et al. (2009) suggest that faith-based organizations

rely heavily on partners with similar views during disaster relief efforts. However, while researchers have demonstrated interest in this area, the literature on religion in humanitarian operations management remains scarce.

Outside the operations management literature, research from religious, management, and non-profit scholars has investigated how religion influences workplace and relief outcomes. For example, Berger (2003) suggests that religion differentiates faith-based NGOs and influences individuals through organizational, strategic, and service dimensions. From an organizational perspective, religion provides a sense of representation through identity, legitimacy, persuasiveness, geographic range, and structure. Religion also provides NGOs access to financing through an established financial network. The strategic dimension motivates strategies based on religious teaching (Berger, 2003). It focuses on developing faith-based NGO mission statements, establishing an outline of how to serve and guide individuals within their organizations, communities, and society. Processes related to network building, information facilitation, advocation, guidance, and monitoring behaviors, all shaped around shared ideas of "right and wrong," help influence members and faith-based NGOs to realize their missions (Berger, 2003). Finally, the service dimension reflects faith-based NGO actions. Berger (2003) contends that NGOs serve their communities through education, relief, social services, salvation, and the mobilization of opinions. While NGOs may focus on one aspect of services, faith-based NGOs often include multiple services to build up their communities and provide aid when and where needed. Furthermore, religious individuals may be motivated to serve in various ways based on their beliefs, feeling a sense of duty toward their organizations and society.

Overall, these dimensions reflect how religion influences faith-based NGOs and social capital. While both faith-based and non-faith-based NGOs are driven by a public mission to serve,

advocate for, empower, and provide services to those in need, faith-based NGOs represent a hybrid of religious beliefs and social activism (Berger, 2003). We contend that faith-based NGOs may achieve a competitive advantage over non-faith-based NGOs through their affiliation and connection with established religious networks. These networks are embedded in shared allegiance, values, beliefs, histories, and traditions and are influenced by shared identities and connections (Ager et al., 2015). Overall, religion provides structural, relational, and cognitive embeddedness through which volunteers are highly connected, feel a sense of identity, and trust, adhere to norms and obligations, and engage in shared language and interpretations that ultimately impact their behaviors (Heist and Cnaan, 2016). Therefore, we propose the following hypothesis:

H1: NGO religiousness positively influences social capital.

Faith and Volunteers

While religiousness influences social capital through its structures and values, it may also directly affect individual attitudes, behaviors, and actions toward serving the organization and society. Given their importance in NGO operations, we focus on volunteer satisfaction, commitment, and performance. Volunteer satisfaction reflects the degree to which a volunteer is satisfied with their volunteer experience (Bond and Bunce, 2003). In contrast, volunteer commitment is defined as a volunteer's emotional attachment to and perceived obligation to remain or reenlist with an organization (Allen and Meyer, 1990). Finally, we define volunteer performance as the set of behaviors relevant to the operational goals of the organization in which a volunteer works (Jusoh et al., 2021).

The literature has examined the antecedents and outcomes of satisfaction, commitment, and performance in various fields. For example, previous studies have proposed religion as a positive predictor of volunteerism in volunteering literature. Religiousness motivates volunteers,

improving satisfaction, commitment, and engagement (Galen et al., 2015; Kang et al., 2015; Lam, 2002; Okun et al., 2015). Specifically, Erasmus et al. (2016) propose the social and value aspects of religion as primary motivators for religious volunteers. They contend that religion increases volunteering and impacts motivations to serve through shared norms and obligations (Lam, 2002; Okun et al., 2015; Ruiter and De Graff, 2006; van Tienen et al., 2011). Other studies have investigated religion's psychological and coping effects (Aten et al., 2014, 2019; Stratta et al., 2013), which can positively affect individual behaviors and actions. Finally, religion may encourage individual performance and commitment to organizations (Héliot et al., 2020; Karakas, 2010). Therefore, we propose the following hypothesis:

> **H2:** NGO religiousness positively influences volunteer (a) satisfaction, (b) commitment, and (c) performance.

Social Capital and Volunteers

SCT contends that social structures influence individual behavior and actions. Nahapiet and Ghoshal (1998) assert that social capital is a socio-structural resource that allows individuals to achieve goals that would otherwise be “impossible” or costly. In doing so, it increases the efficiency and adaptability of volunteers through increased social ties and identification and intensifies behaviors toward collective goals and outcomes (Ataseven et al., 2018; Nahapiet and Ghoshal, 1998). Therefore, much of the SCT literature at the interpersonal level emphasizes job satisfaction (Flap and Völker, 2001; Requena, 2002; Roh et al., 2013), commitment (Barden and Mitchell, 2007; Ellinger et al., 2013; Krause et al., 2007), and performance (Ellinger et al., 2013; Krause et al., 2007; Lee et al., 2004; Mallapragada et al., 2020; Sparrowe et al., 2001) as outcomes of social capital. For example, in the humanitarian literature, Ataseven et al. (2018) show that increased social capital improves integrative volunteer behaviors. Similarly, Kaltenbrunner and

Renzl (2019) find that various aspects of social capital in terms of structural, relational, and cognitive embeddedness positively influence volunteers' collaborative behaviors and performance of volunteers in a disaster relief setting. Overall, the literature shows that social capital plays a vital role in the behaviors and actions of individuals in humanitarian relief and workplace settings. Therefore, we propose the following hypothesis:

H3: Social capital positively influences volunteer (a) satisfaction, (b) commitment, and (c) performance.

Finally, we expect social capital to link NGO religiousness to volunteer outcomes. In addition to the earlier theoretical discussion, much of the religious literature highlights that the influence of religion on individual behaviors and actions is often manifested by developing shared norms and values, social ties, personal relationships, and trust. For example, Ager et al. (2015) shows how religious communities contribute to and promote resilience and responses to adverse events. They focus on how religious communities affect emergency response regarding material and psychological support engendering structural and cognitive embeddedness and facilitating transitional and durable solutions such as conflict mitigation, engagement, and integration, promoting relational embeddedness (Ager et al., 2015). Ultimately, they state that religious communities influence resilience and response through their established networks, shared identity and vision, religious narratives and leadership, and ability to mobilize, coordinate, train, console, encourage, and resolve conflict among individuals (Ager et al., 2015). All these aspects reflect features of social capital. Therefore, we propose the following hypothesis:

H4: Social capital mediates the relationship between NGO religiousness and volunteer (a) satisfaction, (b) commitment, and (c) performance.

Methodology: Scenario-Based Video Experiment

To assess the proposed hypotheses, we collected data through scenario-based video experiments. A scenario-based experiment is appropriate to examine how the organizational environment influences individual behaviors and actions (Eckerd et al., 2021). In this type of experiment, human participants assume a defined role that includes cues to manipulate the levels of a factor of interest, controlling for factors that are not under investigation (Peinkofer and Jin, 2022; Polyviou et al., 2018). In their assumed role, participants react to different versions of scripted information and respond to questions and tasks regarding the dependent variables (as well as controls and checks) that closely mirror reality (Peinkofer and Jin, 2022; Polyviou et al., 2018; Rungtusanatham et al., 2011). We analyzed participants' reactions and responses to examine how the manipulated variables influenced their reactions and responses (Rungtusanatham et al., 2011).

Furthermore, utilizing a video experiment helps increase the realism and fidelity of the experimental design and address the proposed research questions more realistically, capturing the intangible elements of the volunteer experience better than with a written vignette (Victorino et al., 2013). Videos are an established experimental tool for service operations. They allow for more control over independent variables than a field experiment and have also been proven to engender similar psychological and behavioral responses compared to real service settings (Bateson and Hui, 1992; Victorino et al., 2013).

Experiment 1: Vignette Design

We followed previous research to develop the proposed scripts and videos (Rungtusanatham et al., 2011; Victorino et al., 2013; Victorino and Wardell, 2013). In the pre-design stage, we examined the websites of a dozen faith-based and non-faith-based NGOs. We explored their mission statements, visions, goals, and aid activities to gather insight into their similarities and differences.

We used their websites to draft scripts, then reviewed by university faculty members with expertise in operations management and experience in behavioral experiments and vignette design from a US-based research institution. The proposed scripts are intended to recreate a realistic volunteer welcome video. Hence, we examined multiple volunteer welcome videos. This approach allowed us to enhance the manipulation of NGO religiousness through a description of their mission, values, goals, and presentation of the NGO. We also gained the intangible knowledge necessary to design realistic videos while limiting possible confounds. Finally, three executive directors of faith-based NGOs reviewed the scripts to ensure consistency and precision. During the design stage, we utilized form postponement. We developed two related but separate module scripts: a common module (non-faith-based NGO) and an experimental module (faith-based NGO), reflecting NGO religiousness (Trentin and Salvador, 2011). We finalized the specifics of the video design during the design stage and filmed the video scenarios. We used one actor, the same across all videos, to play the role of an NGO outreach coordinator. Furthermore, we employed a professional crew to film and edit the videos in a professional studio (Victorino et al., 2013). Finally, we conducted a pre-test during the post-design stage to evaluate the scripted videos' realism and the manipulations' effectiveness.

Experiment 1: Dependent, Independent, and Control Variables

Experiment 1 was conducted in the behavioral laboratory. Following the presentation of the videos, participants were asked to complete a series of repeated tasks and answer questions related to the potential variables of interest. Volunteer performance was measured in terms of the task's effectiveness or accuracy. Effectiveness highlights an NGOs ability to deliver the correct products, to the correct places, at the correct time, in the correct conditions, packaging, and quantity to the correct users (Charles et al., 2016; Supply Chain Council, 2006). Accuracy is an essential aspect

of effectiveness and is one of the most critical performance outcomes for NGOs. To appropriately gauge performance and address the proposed research questions, we asked participants to do volunteer picking, assembly, and packing tasks. This task required participants to assemble multiple relief hygiene kits for individuals in need. We consider it the best way to simulate a realistic volunteer task experience. The hygiene kit items were provided in collaboration with the American Red Cross and a Fortune 50 consumer-packaged-goods firm. The American Red Cross has confirmed that the assembly of hygiene kits is a typical volunteer activity in response to disasters. The kit items reflect the products regularly provided to disaster relief victims. In Experiment 1, we asked participants to sort through a bin of hygiene products and create five hygiene kits that would be donated to individuals in need. The consumer-packaged-goods firm donated the products. We evaluated volunteer performance based on two measures of accuracy, namely, the correct number of products (total accuracy) and the correct amount of each product (item accuracy). A bill of materials listing the correct products and the number of items for each product needed to produce an accurate hygiene kit was provided to each participant. Participants took an average of 72.84 seconds to complete each volunteer task. Figure 2 in Appendix C illustrates the laboratory volunteer task.

We measured social capital using a combination of structural, relational, and cognitive embeddedness scales. Structural embeddedness reflects the pattern of connections, configurations, and ties within a network (Nahapiet and Ghoshal, 1998). We utilized social interaction ties to measure structural embeddedness. Social interaction ties were measured using an adapted five-point Likert scale (1=strongly disagree to 5=strongly agree), which was previously validated (Dobrzykowski and Tarafdar, 2015). Relational embeddedness reflects the trust that develops in relationships over time (Nahapiet and Ghoshal, 1998). Instead of trust, we used swift trust as a

measure of relational embeddedness. Swift trust is a form of trust specific to emergent or temporary organizations operating in environments characterized by severe time pressure, with high importance placed on achieving goals (Dubey et al., 2019). In the context of aid relief, swift trust is considered a more appropriate measure of trust (Dubey et al., 2019). We measured swift trust using a previously validated five-point Likert scale (1=strongly disagree to 5=strongly agree) (Dubey et al., 2019). Cognitive embeddedness reflects shared representation, interpretation, and meaning (Nahapiet and Ghoshal, 1998). We used shared vision to measure cognitive embeddedness. We measured it using a previously validated five-point Likert scale (1=strongly disagree to 5=strongly agree) (Leana and Pil, 2006). Finally, both volunteer satisfaction (Güntert et al., 2016) and commitment (Kundu and Lata, 2017) were measured using a five-point Likert scale (1=strongly disagree to 5=strongly agree), which was previously validated. Table 2 in Appendix C illustrates the measurement items in detail and Table 3 provides details of the descriptive statistics and correlations for each variable in Experiment 1.

Finally, we control spirituality and age. Spirituality represents a separate dimension of faith. It is a broader form of belief that reflects the enhancement of the self and a sense of connectedness and relatedness with others and the community and a higher being or "God" (Dyson et al., 1997; Karakas, 2010). Spirituality allows individual expression and a less restricted view of "God" (Dyson et al., 1997). It may acquire different perspectives and is believed to rely on one's relationships with others (Dyson et al., 1997). We control spirituality because it allows for individual expression and is less restrictive by nature. Spirituality (Stratta et al., 2013) was measured using a previously validated four-point scale (1=not spiritual at all to 4=very spiritual). As mentioned above, religiousness is lowest among young adults, and an increase in non-religious

affiliation is observed in younger generations in the United States. Hence, we also control participant age (Pew Research Center, 2012).

Experiment 1: Participants, Procedures, and Experimental Checks

Experiment 1 consisted of a between-subjects laboratory experiment conducted in a university behavioral research laboratory. A total of 143 student participants were recruited through the university's behavioral research laboratory participants portal, which the laboratory continuously vetted to ensure high-quality participants. We recruited a heterogeneous group of students based on their religious identity and demographics and included the necessary checks to ensure high-quality data collection.

We employed three "attention filters," items of completely different questions that delivered an indication of participant attention when answering questions in the experiment (Abbey and Meloy, 2017). These attention filters consisted of memory recall, logical statements, and directed query questions. Each question was considered to have a high level of objectivity, limiting subjective bias when evaluating the quality of the participants (Abbey and Meloy, 2017). The first attention filter, memory recall, is directly related to the video scenario, verifying whether participants attentively watch the video and read the questions ("The goal of our organization is to provide aid and support to victims: True/false"). The second attention filter, a logical statement ("Please select the opposite of angry out of the response choices below"), is a general question to verify whether participants adequately understand English and attentively read each question. The final attention filter, a direct query, uses a seven-point Likert scale (1=strongly disagree to 5=strongly agree), asking participants to "select somewhat agree." Of 143 recruited participants, 110 passed the attention check.

We randomly assigned participants to one of the two versions of the scripted video conditions, which resulted in a balanced distribution of 55 participants per scenario (Eckerd et al., 2021; Lonati et al., 2018). We collected data over a period of two weeks. We instructed participants to assume the role of an aid relief volunteer, watch the assigned volunteer welcome video, and read the description of their task and all the questions carefully. We asked them to complete a series of volunteer-related tasks and answer randomly ordered questions about social capital, volunteer satisfaction, volunteer commitment, and attention and manipulation checks. Finally, participants were asked questions related to realism, social desirability, and participant demographics. Table 4 in the Online Supplement shows participant demographics for Experiments 1 and 2. Table 5 and Figure 3 in Appendix C illustrate the experimental design in detail.

Realism checks consisted of two questions rated on a five-point Likert scale (1=strongly disagree to 5=strongly agree) (Dabholkar, 1994). We asked participants to measure how realistic the video scenarios were and if they had difficulty imagining themselves in the scenario. Participants found the video scenarios realistic (μ=4.28, σ=0.71) and had little difficulty envisioning themselves in the scenarios (μ=4.20, σ=0.95).

Manipulation checks for NGO religiousness asked participants to rate how religiously focused they believed the organization was based on its mission and goals presented in the video using a four-point Likert scale (1=secularly (non-religiously) focused to 4=very religiously focused). T-tests ($p<0.01$) showed that the faith-based NGO video reflected the highest level of NGO religiousness (μ=3.36, σ=0.73) compared to the non-faith-based NGO video (μ=1.84, σ=0.79).

We defined demand characteristics as aspects of a scenario-based experiment that may lead a participant to identify, understand, and respond based on what they perceived to be as expected

by the researcher (Eckerd et al., 2021; Thomas et al., 2020). In line with the accepted practices of scenario-based experiments, we employed multiple procedures to ensure the experiment's validity, reduce the potential of demand characteristics effects, and attain dependable responses. First, in line with Lonati et al. (2018), we included a baseline condition that allowed us to observe the participants' responses without the manipulated variable. Next, we utilized a randomized between-subjects design, less vulnerable to self-selection bias (Antonakis et al., 2010), demand characteristics bias (Thomas et al., 2020), and order effects (Abbey et al., 2018; Ta et al., 2018). In addition, we guaranteed the anonymity of all participants by abstaining from collecting any identifying information that could potentially connect them to their responses. We then reassured participants that there were no wrong or right answers (Thomas et al., 2020). Finally, we measured social desirability bias using a five-item scale adopted from the Marlowe–Crowne scale (Loo and Loewen, 2004; Lorentz et al., 2012).

To end, we utilized the single-factor confirmatory test to examine the potential for common method bias (Podsakoff et al., 2003). Results showed that all lambda values for the substantive variables remained statistically significant on its intended latent construct. Additionally, the average variance explained for the substantive constructs was extensively greater than (0.55) those linked to the method latent factor (0.06).

Experiment 1: Analysis and Results

Religiousness on Social Capital and Volunteer Outcomes

We used Hierarchical Multiple Regression in SPSS version 26 to assess the direct effect of NGO religiousness on our outcome variables, while including all the control variables. H1 posits that NGO religiousness has a positive direct relationship with social capital, while H2 posits that NGO religiousness has a positive direct relationship with volunteer satisfaction, commitment, and

performance. The results show that NGO religiousness has a significant but negative relationship with social capital (β= -0.42, t= -3.53, p<0.00), failing to support H1. The negative influence of NGO religiousness holds across all dimensions of social capital with social interaction ties (β= -0.58, t= -3.85, p<0.00), shared vision (β= -0.33, t= -2.52, p=0.01), and swift trust (β= -0.35, t= -2.14, p=0.04). Regarding H2, the results show that NGO religiousness has a significant negative influence on volunteer satisfaction (β= -0.29, t= -2.19, p=0.03), commitment (β= -0.40, t= -3.02, p<0.00), total accuracy (β= -0.69, t= -2.31, p=0.02), and item accuracy (β= -2.30, t= -2.50, p=0.01), failing to support H2. Contrary to our first two hypotheses, these results indicate that an NGO's religiousness negatively impacts social capital development, hindering volunteers' behaviors and performance. Table 6 in Appendix C presents these results in detail.

Mediation: Social Capital and Volunteer Outcomes

H3 posits that social capital positively influences volunteer satisfaction, commitment, and performance. In addition, H4 proposes that social capital mediates the relationship between NGO religiousness and volunteer satisfaction, commitment, and performance. To formally examine the direct effect of social capital on the proposed outcome variables and the hypothesized mediation effect, we utilize Hayes Process Model 4 (95% confidence interval). The results indicate that social capital has no significant direct effect on volunteer satisfaction (β=0.15, t=1.34, p=0.18), total accuracy (β= -0.06, t= -0.26, p=0.78), or item accuracy (β=0.02, t=0.03, p=0.98). The indirect effect of NGO religiousness on volunteer satisfaction and performance via social capital is not significant. Social capital has a positive and significant direct effect on volunteer commitment (β=0.75, t=9.35, p<0.00) and operates as an indirect-only mediator between NGO religiousness and commitment (β= -0.31, CI= -0.49 − -0.14) (Zhao et al., 2010). This result partially supports H3 and H4. Table 7 in Appendix C illustrates the effects of social capital and its mediation.

Experiment 2: Theoretical Framework and Methodology Overview

Theoretical Framework and Hypothesis Development: NGO and volunteer religiousness

Contrary to our initial hypotheses (H1 and H2), and in line with scholars suggesting the potential adverse effects of religion, our initial results showed that NGO religiousness produced negative volunteer behaviors and performance outcomes. Therefore, we further reviewed the literature, focusing on studies highlighting that congruence in religious values between individuals and their organizations might impact volunteer outcomes. As previously stated, Erasmus et al. (2016) proposed religious values and communities as the primary motivators for faith-based volunteers. Similarly, Galen et al. (2015) showed that religion was associated with higher levels of homophily and parochial behavior, in which religious individuals primarily volunteered, interacted, and exhibited higher levels of prosocial behaviors within their religious networks. Therefore, based on PO fit theory, we expanded on the relationships between NGO religiousness, volunteer satisfaction, volunteer commitment, and performance by examining the moderating role of volunteer religiousness. PO fit posits that attitudes and behavior result from the congruence and compatibility between individuals and their organizations (Cable and Edwards, 2004; Kristof-Brown et al., 2005). These aspects reflect the degree to which individuals and organizations share values, goals, and priorities (Erdogan et al., 2020). Increases in fit are believed to enhance concepts of shared understanding, trust, communication, satisfaction, and commitment, improving various performance outcomes (Erdogan et al., 2020; Vogel et al., 2016). For example, volunteering literature highlights that increased levels of identification or 'fit' leads to higher levels of satisfaction, commitment, and engagement among volunteers (Kang et al., 2015; van Vianen et al., 2008). Thus, in line with the PO fit theory, we contend that the influence of NGO religiousness is

contingent on the religious fit between NGOs and volunteers. Therefore, we propose the following hypothesis:

> **H5:** Volunteer religiousness positively moderates the relationship between NGO religiousness and (a) social capital, (b) volunteer satisfaction, (c) commitment, and (d) performance.

Dependent, Independent, and Control Variables

We conducted a second experiment to examine H5 and replicate our initial experiment using individuals with recent volunteer relief experience. Experiment 2 used an online approach and addressed experienced humanitarian relief volunteer participants. The same variables used in Experiment 1 were retained, with the addition of two variables: kit assembly time and volunteer religiousness. In line with Experiment 1, following the presentation of the videos, participants were asked to complete a series of repeated tasks and answer questions related to potential variables of interest. Since we addressed experienced volunteers, in addition to accuracy (Experiments 1 and 2), we included a measure of assembly time (Experiment 2), as speed is an important performance measure for NGOs (Charles et al., 2016). We asked participants to engage in a series of picking, assembling, and packing tasks. Each task required participants to create relief hygiene kits for individuals in need through an online sort-and-fill task. To complete these tasks, participants had to sort through a list of hygiene products, click on them, and drag them into a box representing the hygiene kit. Participants took, on average, 61.41 seconds to complete each volunteer task. The hygiene kit items were identical to the Red Cross Hygiene Kits, and participants completed these tasks online over ten rounds. In line with Experiment 1, volunteer performance reflected the accuracy of the kits in terms of the correct number of products (total accuracy) and the correct amount of each product (item accuracy). In addition, to measure the timeliness of participants, we

timed each round based on the number of seconds it took for participants to submit their kits and move to the next round. Upon completion of the ten rounds, the times of each round were summed to create a total time indicator. We used total time as a proxy for the assembly time. A bill of materials required to produce an accurate hygiene kit was provided to each participant during each task round of the volunteer task assignment. Figure 4 in Appendix C illustrates the online volunteer task.

We measured volunteer religiousness based on participants' religious identities. We asked the participants to specify their religious affiliation to measure religious identity. Options were given for Christian religion (e.g., Catholic, Lutheran, Methodist, Baptist, Non-Denominational, and Presbyterian, among others), other world religions (i.e., Buddhism, Islam, Judaism, and Sikh, among others), and "I do not have a religious affiliation." We specifically focused on Christian and non-religious-affiliated participants to limit potential confounds. We chose Christianity because it represents the most widely practiced religion in the USA and the world (Religious Landscape Study, 2022; The World Factbook, 2022). Table 8 in Appendix C details the descriptive statistics and correlations for each variable in Experiment 2.

Participants, Procedures, and Experimental Checks

A total of 244 participants were recruited via a professional survey research firm to participate in this experiment (Schoenherr et al., 2015). Using a professional survey research firm allowed us to recruit a heterogenous group of participants based on their religious identity and degree of religiosity, age, gender, and work experience. This approach also allowed us to screen and recruit participants with recent volunteer relief experiences.

We used cookie and IP address checks to assess the quality and appropriateness of participants in Experiment 2. Each IP address was allowed to complete the experiment only once,

and a professional survey research firm employed cookies to prevent participants from taking the survey a second time (Schoenherr et al., 2015). Of the 244 recruited participants, 198 passed attention and data quality checks. We randomly assigned the 198 participants to one of two versions of the video experiment, resulting in a balanced distribution of 99 participants per scenario (Eckerd et al., 2021; Lonati et al., 2018). We collected data over one month. We subjected participants to the same experimental procedures and checks as the participants of Experiment 1. We included the same three "attention filters" as in Experiment 1. All realism, manipulation, and social desirability standards met the standard criteria.

Experiment 2: Analysis and Results

Religiousness on Social Capital and Volunteer Outcomes

H1 and H2 posit that NGO religiousness positively influences social capital and volunteer outcomes. In line with Experiment 1, the results show that NGO religiousness has a significant but negative relationship with social capital (β= -0.28, t= -2.61, p=0.01), failing to support H1. Regarding the dimensions of social capital, NGO religiousness has a significant influence on social interaction ties (β= -0.37, t= -2.90, p<0.00) and shared vision (β= -0.32, t= -2.89, p<0.00) but is not significantly related to swift trust (β= -0.15, t= -1.35, p=0.18). Concerning H2, the results indicate that the influence of NGO religiousness on volunteer commitment remains negative and significant (β= -0.25, t= -2.08, p=0.04), while its influence on satisfaction is negative but non-significant (β= -0.10, t= -0.93, p=0.35). In addition, while NGO religiousness has a moderately significant effect on assembly time (β=102.30, t=1.87, p=0.06), it is not related to total accuracy (β=0.45, t=0.87, p=0.39) or item accuracy (β=5.20, t=1.24, p=0.22). Overall, these results align with Experiment 1, confirming that NGO religiousness negatively influences volunteer behavior

and performance. The results of NGO religiousness for each outcome variable in Experiment 2 are reported in Table 9.

Mediation: Social Capital and Volunteer Outcomes

In line with Experiment 1, we utilize Hayes Process Model 4 (95% confidence interval) to analyze the direct (H3) and mediation (H4) effects of social capital. The results of Experiment 2 indicate that social capital has a significant positive direct effect on volunteer satisfaction (β=0.57, t=9.82, p<0.00). Furthermore, the indirect effect of NGO religiousness on volunteer satisfaction via social capital is significant (β= -0.16, CI= -0.28 − -0.04). This finding indicates that social capital is an indirect mediator (Zhao et al., 2010). Similar to Experiment 1, we find that social capital has a significant and positive direct effect on commitment (β=0.79, t=13.50, p<0.00) and operates as an indirect-only mediator (β= -0.22, CI= -0.40, -0.06) (Zhao et al., 2010). Social capital does not significantly influence or act as a mediator of performance. Table 10 in Appendix C presents the social capital and mediation results of Experiment 2.

Moderation: Volunteer Religiousness

To examine H5, the potential moderation effects of volunteer religiousness, we utilize Hayes Process Models 1 and 8. H5 focuses on the "fit" between volunteers and NGOs. It posits that congruence between NGO and volunteer religiousness influences social capital and volunteer satisfaction, commitment, and performance. The results show that the interaction between NGO and volunteer religiousness positively influences social capital (β=0.73, t=3.29, p<0.00). In addition, this interaction has a positive but non-significant impact on volunteer satisfaction (β=0.14, t=0.62, p=0.54) and a positive and significant effect on commitment (β=0.75, t=3.00, p<0.00). Finally, while the interaction between NGO and volunteer religiousness has a non-significant impact on total accuracy (β= -1.39, t= -1.29, p=0.20) and item accuracy (β= -5.45, t= -

0.62, p=0.53), it has a moderately negative influence on assembly time (β= -201.26, t= -1.76, p=0.08). To examine the significant interaction effects in depth, we review the conditional effects of NGO religiousness at various levels of the moderator, volunteer religiousness. These additional results show that the influence of NGO religiousness on social capital (β= -0.76, t= -4.23, p<0.00), commitment (β= -0.75, t= -3.68, p<0.00), and assembly time (β=234.56, t=2.53, p=0.01) are only significant when volunteer religiousness is low. The effects of NGO religiousness are non-significant when volunteer religiousness is high. Overall, the results partially support H5.

Next, we examine how the interaction between NGO and volunteer religiousness influences the indirect effect of NGO religiousness on satisfaction, commitment, and performance through social capital. We first address the conditional indirect effects or indirect effects of NGO religiousness on the outcomes at various levels of the moderator. We then analyze the moderated mediation effect or the difference between the conditional indirect effects. Since social capital does not have a significant relationship with any of the performance variables, we focus on the indirect effect of NGO religiousness on volunteer satisfaction and commitment. The results show that the indirect effect of NGO religiousness on volunteer satisfaction and commitment via social capital is conditional. The negative indirect effect of NGO religiousness on satisfaction (β= -0.44, CI= -0.71, -0.20) and commitment (β= -0.59, CI= -0.95, -0.26) is only significant when volunteer religiousness is low. When volunteer religiousness is high, the negative indirect effect of NGO religiousness becomes non-significant. Overall, the moderated mediation results show a positive and significant difference between the conditional indirect effects on volunteer satisfaction (β=0.41, CI=0.15 to 0.68) and commitment (β=0.59, CI=0.20 to 1.00) when moderated by volunteer religiousness. Figures 5 through 7 in Appendix C illustrate the significant moderation effects. Tables 11 and 12 in Appendix C summarize the moderation results.

Post Hoc analysis

Volunteer Religiosity

We anticipated that volunteer religiousness would moderate the relationships among NGO religiousness, social capital, and volunteer outcomes. While we found partial support for H5, our initial measure of volunteer religiousness focused on religious identity but did not account for religiosity. Berger (2003) proposed that degrees of religiosity and emphasis on religion might lay the foundation for actions. Therefore, we re-examined our results using volunteer religiosity as a moderating variable. We adopted a previously validated four-point scale (1=not religious at all to 4=very religious) from Stratta et al. (2013) to measure religiosity. The religiosity scale measures participants' self-perceptions and how religious or non-religious they believe they are. We asked various religiosity check questions to ensure that participants' perceptions matched their actions. Questions regarding their active membership in a church-related organization, their frequency of church attendance, prayer, reading the Bible, and the importance of religion in their lives were cross-referenced with their self-perceived degree of religiosity. We assessed participants' answers to the religiosity check questions using previously adopted and verified scales (Lam, 2002; van Tienen et al., 2011). The analysis indicates that those who perceive themselves as having a higher level of religiosity are more often active members of church organizations, attend church, pray, read the Bible more frequently, and rate religion as more important in their lives.

In line with our initial results for H5, the interaction between NGO religiousness and volunteer religiosity has a significant and positive influence on social capital (β=0.25, t=3.67, p<0.00) and commitment (β=0.25, t=3.32, p<0.00) and a positive but non-significant relationship with satisfaction (β=0.02, t=0.29, p=0.77). In addition, the interaction between NGO religiousness and volunteer religiosity does not significantly influence any performance outcomes (the

coefficient on assembly time is significant in the main results). Finally, we reviewed the conditional indirect effects of NGO religiousness and moderated mediation effects of volunteer religiosity. In line with our initial results, the negative indirect effect of NGO religiousness on volunteer satisfaction and commitment is conditional and only significant when a volunteer's religiosity is at a medium or low level. The moderated mediation effect shows a significant positive difference in the conditional indirect effects for volunteer satisfaction (β=0.14, CI=0.07 to 0.21) and commitment (β=0.20, CI=0.09 to 0.32) when moderated by religiosity. Finally, the conditional and moderated mediation effects are not significant for our performance outcomes. Tables 13 – 16 in Appendix C illustrate the volunteer religiosity results in detail.

Volunteer Satisfaction as a Mediator

A recent trend in humanitarian literature calls for research to examine humanitarian supply chain operations through a service operations lens (Heaslip et al., 2018; Oloruntoba and Gray, 2009). NGOs primarily operate as service organizations. They conduct most operations in the presence of customers, are labor-intensive, and engage in activities to increase the well-being of individuals in need (Boenigk et al., 2021; Dobrzykowski et al., 2016; Goodale et al., 2008). Managing a volunteer's specialized knowledge and the interaction between volunteers and beneficiaries is essential to their success. Therefore, in line with the service operations literature, we re-examine the proposed model to reflect the service profit chain framework.

The service profit chain was one of the earliest frameworks addressing how the relationships between organizations and employees influence employee, customer, and firm outcomes. For example, Heskett et al. (1994) highlight how an organization's internal quality or work environment drives employee satisfaction. They define internal quality as employees' feelings toward their jobs, organizations, and co-workers. This approach relates to religion and

social capital, as both are drivers and reflections of the relationship individuals build with each other and their organizations. These relationships influence behavior and performance. Specifically, the service profit chain highlights satisfaction as a direct driver of employee loyalty (or commitment) and productivity (or performance). Hence, it acts as a mediator between internal quality, loyalty, and productivity. For example, Yee et al. (2008) find evidence to support this framework, illustrating that employee satisfaction positively influences service quality, customer satisfaction, and firm profitability. Finally, the management and psychology literature emphasizes how organizational structures and work environments influence employee satisfaction, affecting commitment, retention, and performance outcomes (Allen and Meyer, 1990; Gruman and Saks, 2011). Therefore, we adjust the proposed model to examine the direct effect of volunteer satisfaction on commitment and performance, proposing volunteer satisfaction as a mediating variable between NGO religiousness and our outcomes. Figure 8 in Appendix C shows the adjusted model.

This study's findings stressed the importance of PO fit on volunteer outcomes. Hence, we focused on Experiment 2 to examine volunteer religiousness as a moderator in the adjusted model, addressing the volunteer sample. The results of Experiment 2 show that NGO religiousness does not significantly influence volunteer satisfaction, while social capital operates as an indirect-only mediator. Therefore, we examined the direct effect of volunteer satisfaction on the outcome variables and volunteer satisfaction as a mediator between social capital and volunteer commitment and performance. First, we examined the direct effects of volunteer satisfaction without considering social capital. To this end, we utilized Hayes Process Model 4. Volunteer satisfaction has a significant positive influence on commitment ($\beta=0.55$, $t=7.39$, $p<0.00$) and total accuracy ($\beta=0.70$, $t=2.00$, $p=0.05$). However, volunteer satisfaction is not significantly related to

item accuracy (β=4.14, t=1.45, p=0.15) or assembly time (β=32.74, t=0.87, p=0.39). Given the direct effect of social capital on volunteer satisfaction, we included social capital in the model. We examined the role of volunteer satisfaction as a mediator between social capital, commitment, and performance. The inclusion of social capital negates the direct effect of volunteer satisfaction on commitment, indicating that volunteer satisfaction does not mediate the relationship between social capital and volunteer commitment. Volunteer satisfaction retains a marginal positive direct effect on total accuracy and operates as an indirect-only mediator for total accuracy (β= -0.13, CI= -0.26, -0.02) at 90% CI (Zhao et al., 2010). Tables 17 and 18 in Appendix C illustrate these results in detail.

Finally, we examined the moderating effect of volunteer religiousness. When accounting for volunteer satisfaction as a mediator between social capital and total accuracy, the results show that the indirect effect of NGO religiousness remains conditional and negative when volunteer religiousness is low. We find a marginal positive moderated mediation effect (β=0.33, CI=0.03 to 0.70) at a 90% CI. Furthermore, we obtain similar results when volunteer religiosity is used as a moderating variable. The results show that the indirect effect is also conditional, resulting in a positive moderated mediation effect at the 95% CI (β=0.12, CI=0.004–0.28). Tables 19 and 20 in Appendix C illustrate these results in detail.

Discussion

Relief operations aim to minimize and alleviate suffering by providing timely and effective aid. NGOs are crucial for achieving this goal, providing necessary support to individuals when societal systems fail (Beamon and Balcik, 2008; Day et al., 2012). Increases in disruptive events, societal needs, and competition coupled with the inherent characteristics of the aid environment have made it challenging to provide aid. In addition, NGOs have been subjected to heightened criticism and

pressure to improve the efficiency and effectiveness of aid relief operations (Kovács and Spens, 2009). To address these needs, this study examines how an NGOs religiousness and related values influence its organizational social structure and the behaviors and actions of its volunteers. Religion plays a vital role in the relief environment, as it has historically provided an understanding of adverse events and has been used as a coping mechanism in response to negative situations (Aten et al., 2019).

Furthermore, religion generates communities of well-connected networks through shared values and beliefs, which NGOs may be able to leverage to influence volunteers and improve operational outcomes (Ager et al., 2015; Berger, 2003). Similarly, volunteers are critical to humanitarian relief success as they represent invaluable labor and knowledge resource for NGOs (Perry, 2007; Zayas-Cabán et al., 2020), contributing to successful relief outcomes (Salem et al., 2022). Grounded in SCT and PO fit theory, this study develops a model that links NGO religiousness and the interaction between NGO and volunteer religiousness, social capital, volunteer commitment, volunteer satisfaction, and service quality (accuracy, assembly time) performance outcomes.

Theoretical Contributions

This study makes several theoretical contributions to humanitarian relief operations, volunteer management, religion and diversity, and social capital and service operations literature. First, contrary to expectations, our findings show that NGO religiousness hinders the development of social capital and volunteer satisfaction, commitment, and performance, both directly and indirectly. While religion literature highlights its benefits and function as a catalyst for increased community social ties, it also contends that religion may also create challenges and produce maladaptive outcomes (Chan-Serafin et al., 2013). For example, humanitarian literature stresses

how religion may induce feelings of superiority, prejudice, egocentricity, and unethical decisions, potentially alienating those who are not a part of the religious group (Chan-Serafin et al., 2013). Faith-based NGOs may have motives, thus hindering trust among volunteers and communities (Heist and Cnaan, 2016). Moreover, conflicting secular and religious worldviews and concerns regarding the lack of independence from religious and political dynamics may create barriers for potential volunteers and relationships between faith-based and non-faith-based organizations (Ager et al., 2015).

Second, our results show that when the religiousness of volunteers and NGOs match, social capital and volunteer satisfaction, commitment, and performance significantly increase. When addressing religious congruence, we find that religious fit does not lead to positive social capital and volunteer outcomes but offsets the negative effects of NGO religious affiliation. This critical finding adds to our previous contributions by highlighting the role of PO fit in mitigating the negative perceptions and outcomes based on religious affiliations and networks (Cable and Edwards, 2004; Kristof-Brown et al., 2005). Furthermore, this study addresses volunteer continuity and retention issues, which represent major barriers to NGO activities, and their ability to provide aid effectively and efficiently (Bealt et al., 2016; Korff et al., 2015). In this respect, the study's results align with previous studies emphasizing the importance of religious compatibility (Heist and Cnaan, 2016; McLachlin et al., 2009). Hence, we show that religiousness is most beneficial for individuals embedded in a religious belief in which they represent the majority and least beneficial when their beliefs represent the minority (Chan-Serafin et al., 2013).

This study also contributes to the social capital literature, highlighting the potential downside of networks with strong ties, which may be redundant and closed, limiting openness and access to diverse beliefs and new information outside the network (Granovetter, 1973; Nahapiet

and Ghoshal, 1998). Specifically, this study adds to the previous work of Villena et al. (2011), who discuss the disadvantages or dark sides of social capital. They surmised that strong social bonds and networks are subject to diminishing returns, which, over time, may produce harmful social outcomes and jeopardize individual and organizational performance. For example, in line with the religious literature (Chan-Serafin et al., 2013; Galen et al., 2015; Heist and Cnaan, 2016), Villena et al. (2011) contend that networks with strong cognitive emphasis may produce homogeneity that limits individual thinking, creativity, and continuous learning. In addition, networks with a strong relational emphasis may induce opportunistic behaviors and decrease the motivation to enhance performance. Finally, they highlight that networks with strong structural ties may lead to redundant communications and increase cognitive burdens, hindering an individual's ability to make timely decisions and engage in effective activities. Overall, these results explain the unexpected influence of NGO religiousness on volunteer outcomes and set the foundation for the importance of PO fit between volunteers and NGOs.

Third, this study contributes to the service operations literature, specifically, the service profit chain (SPC) framework and SCT. As previously mentioned, we re-examine the proposed model to reflect the work of Heskett et al. (1994), stressing that employee satisfaction directly influences employee loyalty and productivity. Our study adds to this framework by confirming satisfaction as a direct determinant of employee loyalty (commitment) and productivity (performance) in a humanitarian volunteer setting. Thus, we reveal a causal pathway for NGOs to improve operational performance. Furthermore, our study introduces boundary conditions into the SPC framework and highlights the essential intersection between service operations and social capital. When we account for social capital and satisfaction, social capital influences behaviors (both satisfaction and commitment), while volunteer satisfaction improves performance and

productivity. This new and crucial finding proposes the development of social capital as a prerequisite to satisfaction and performance in a humanitarian service setting. This result integrates the SPC and SCT literature, which highlights how internal quality (the feeling employees have toward their colleagues and organizations) (Heskett et al., 1994; Yee et al., 2008) and the level of network embeddedness (the strength of social ties or relationships) (Ataseven et al., 2018; Carey et al., 2011; Lawson et al., 2008; Nahapiet and Ghoshal, 1998) influence individual behaviors, increasing productivity and performance.

Finally, this study contributes to the literature on workplace diversity. For example, Karakas et al. (2010) show that using spiritual or religious beliefs to exclude others in the workplace undermines the requirements for respect and inclusiveness. This approach may lead to employee dissatisfaction, issues concerning diversity, and feelings of being coerced, isolated, and threatened, increasing social and legal risks. Our study adds to this literature stream by providing empirical evidence that NGO religiousness leads to negative volunteer behavioral and performance outcomes and that religious fit does not necessarily improve volunteer outcomes but buffers the negative effects of NGO religiousness (Ghumman et al., 2013; King and Franke, 2017; Morrison et al., 2010). Furthermore, a recent census of the American religious landscape highlights a growing trend in the number of adults who do not identify with a religious group, which is prevalent among the younger generations (Pew Research Center, 2016; PRRI.org, 2020). This study's results and the above-mentioned religious trends question the effectiveness and sustainability of faith-based NGOs and their ability to primarily depend on volunteers from religious groups. In addition, much of the literature on the intersection of religion and human resources highlights the need to view religion as a matter of diversity in the workplace (Gebert et al., 2014; Héliot et al., 2020; Karakas et al., 2010; Stone-Romero and Stone, 1998).

Limitations and Future Research

Despite its contributions, this study has the following limitations. First, while we utilize video manipulations and a task based on realistic volunteer tasks, efforts should be made to develop field-based studies examining religion's influence on volunteers and their performance. Second, we specifically focus on Christianity, the most widely practiced religion in the United States and the world (Pew Research Center, 2016; The World Factbook, 2022). Furthermore, most domestic, and international, relief NGOs are Christian based. However, other religions, such as Islam, Hinduism, and Buddhism, are also widely practiced by a significant percentage of the world's population and have influenced the creation of faith-based NGOs. In addition, Christianity consists of multiple denominations and NGOs reflective of those denominations. While these denominations and religions may have commonalities, they differ in aspects of their traditions, values, rituals, and beliefs. Future research should investigate whether this study's results hold for different religions and Christian denominations. Future studies should also examine how the interaction between different religions and denominations influences volunteer behavior and actions and how beneficiaries respond to various domestic and international faith-based NGOs.

3. Essay 3: *The Influence of NGO Resources Capabilities on Private-NGO Partnerships*

Introduction

Essay 3 examines non-governmental organization (NGO) resource capabilities as antecedent mechanisms that influence the motivation of private organizations and their willingness to collaborate with NGOs. As the number and cost of disasters continue to rise, society has increasingly relied upon private organizations to address the needs of beneficiaries where the public sector cannot. Increases in globalization and digitalization have enhanced the power and influence of private organizations (Ballesteros et al., 2017; Chen et al., 2019) as well as pressure

from society, specifically customers, to be more socially responsible in all aspects of their business (Cheng et al, 2018; Maon et al., 2009). As such, private organizations have become primary contributors to disaster relief (Ballesteros et al., 2017), providing aid through both direct and indirect forms of relief (Johnson et al., 2011). For instance, in addition to providing resources through NGOs, private organizations own and manage critical areas of infrastructure such as finance, communication, supplies, and logistics (Forcadell and Aracil, 2021; Gabler et al., 2017). Furthermore, private organizations have established supply chains with employees who contain detailed market knowledge (Diehlmann et al., 2021; Gabler et al., 2017) and are experienced in supply chain management and logistics. As such, it is estimated that private organizations provide 70-85% of the resources invested in disaster relief logistics (Diehlmann et al., 2021; Izumi and Shaw, 2015). This is important as supply chain management and logistics are considered crucial factors in determining the success of disaster relief operations (Kovács and Spens, 2007; Maon et al. 2009; Nurmala et al., 2017).

Similarly, as the impact of disasters has increased beyond the capacity of governments, NGOs have become the primary drivers of disaster relief supply chains and aid distribution (Beamon and Balcik, 2008; Diehlmann et al., 2021), and as such are under increased pressure to increase the effectiveness and efficiency of their operations. Though, unlike private organizations, NGOs often lack the financial independence and technical expertise to better manage their supply chains (Nurmala et al, 2017). Therefore, NGOs suffer from poor logistics and technology infrastructure, high employee turnover, and poor coordination efforts that limit the effectiveness of their supply chain operations (Nurmala et al, 2017). In return, the humanitarian literature has emphasized the need for increased collaboration between NGOs and private organizations to improve the effectiveness and efficiency of relief operations, generate more transformative value,

and achieve humanitarian goals (Bealt et al., 2016; Nurmala et al., 2018; Schulz and Blecken, 2010).

While the outcomes of disaster relief operations are contingent on the collaborative relationships developed between disaster relief actors, NGOs are often limited in their ability to develop and manage collaborative relationships. Technological barriers and conflicts in mandates and goals, structure, and culture that hinder communication and a willingness to share information (Bealt et al., 2016; Nurmala et al., 2017) are often considered the primary detriments. Though these barriers are important for improved collaboration, humanitarian literature highlights that hesitation in the formation of private-NGO partnership collaboration is due to issues of power and control (Bealt et al., 2015; Hingley et al., 2011).

Private-NGO partnerships are defined as a set of inter-organizational activities that involve collaboration and are designed to support both partners (Moshtari and Vanpoucke, 2021; Nurmala et a., 2017). NGOs lack the resources and supply chain capabilities to act independently in achieving their humanitarian goals. As such, they are dependent on the resources and knowledge of private organizations to fund and improve their operations. This, in turn, can create a power imbalance between NGOs and private organizations which makes both sides hesitant to collaborate. From an NGOs perspective, dependence on private organizations could damage their image as the perception of independence is important for the reputation of NGOs (Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). From the private organization's perspective, their relationship with NGOs could be viewed as a simple solution to social responsibility efforts that lacks true capability and professionalism (Moshtari and Vanpoucke, 2021). As NGOs often operate as the more dependent organization, in this essay, we focus on how NGOs can influence this power imbalance and a private organization's willingness to engage in collaborative

partnerships. We specifically examine this by focusing on mechanisms that motivate private organizations (i.e., motivational investment) to pursue collaborative partnerships with NGOs and how NGO resource capabilities can offset imbalance, improve interdependence, and influence a collaborative partnership.

Motivational investment is defined as the extent to which the firm values the resources or outcomes mediated by a potential partner (Geyskens et al., 1996; Pfeffer and Salancik, 1978). Firm resources can be defined as all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney, 1991). While NGOs may lack the means to reciprocate the physical resources private organizations provide, NGOs can provide value through intangible human and organizational resources and capabilities, such as legitimacy, relationship networks, and disaster relief operational expertise. As such, we define NGO resource capabilities as all intangible assets, including its relationship networks, firm attributes, and relief market knowledge and expertise, controlled by an NGO that enable it to conceive of and implement strategies that improve its ability to efficiently adapt and effectively respond to the disaster relief environment (Barney, 1991; Baharmand et al., 2019). For example, humanitarian literature states that private organizations are motivated to engage in private-NGO partnerships to demonstrate their corporate social responsibility and improve their reputations (Nurmala et al., 2017), and improve the economic standing of the business (Moshtari and Vanpoucke, 2021). But due to their station as economic institutions, private organizations lack the legitimacy to engage freely in humanitarian relief efforts (Moshtari and Vanpoucke, 2021**)**. As NGOs often have the authority to operate in disaster relief areas (Moshtari and Vanpoucke, 2021), they can provide private organizations with that access. As a result, NGOs can help private

organizations legitimize their corporate social responsibility efforts and positively influence their reputations among their stakeholders and customers (Nurmala et al., 2018). Finally, while NGOs may lack business expertise and capabilities, they have experience with managing relief operations and operating in dynamic, uncertain environments. This has allowed NGOs to develop well-established networks with access to and knowledge of communities and relationships with local businesses and governments (Nurmala et al., 2017). Furthermore, humanitarian literature highlights how private organizations can benefit from NGOs' expertise in developing and operating flexible, agile, and reliable supply chains (Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). Overall, due to their legitimacy, relationship networks, and relief operational expertise, NGOs can help private organizations increase their operational effectiveness and customer service quality. Furthermore, this can benefit their reputation and economic standing going forward. As such, if leveraged, NGO resource capabilities can influence power dynamics between NGOs and private organizations and the formation of private-NGO partnerships. Refer to Table 1 in Appendix D for all construct definitions.

While humanitarian research has conceptually examined the pitfalls that limit private-NGO relationships, there is a lack of empirical evidence in understanding the mechanisms that affect the effective development of cross-sector partnerships between humanitarian NGOs and private organizations (Nurmala et al., 2017; Moshtari and Vanpoucke et al., 2021). Therefore, we formulate the following research question: *How do NGO resource capabilities affect a private organization's motivational investment and private-NGO partnerships?* Specifically, we examine how NGO resource capabilities can motivate private organizations' decisions regarding NGO collaboration, akin to a partnership selection decision.

Furthermore, the motivation and decision to collaborate may evolve with the stages of a disaster (i.e., preparedness, response, and recovery) (Sheffi and Rice, 2005). These stages are characterized by differing aims, activities, levels of urgency, and performance outcomes that may affect the influence of a private organization's motivation to collaborate with an NGO. As such, this study will also examine how private organizations' motivations and willingness to partner with NGOs differ across the stages of a disaster. Therefore, we also formulate the research question: *How does the relationship between NGO resources capabilities, a private organization's motivational investment, and private-NGO partnerships differ across the stages of disaster relief?*

To examine these research questions, we integrate the theoretical frameworks of resource dependence theory (RDT) and the matching theory of alliance formation. RDT's main premise is that firms are open systems and are dependent on the members of their task environments. It states that an organization cannot respond to every demand in its environment and that environmental factors determine its dependence on any other organization or group (Pfeffer and Salancik, 1978). As such, the context in which organizations are embedded determines their outcomes and activities. This leads to interdependence when one does not control all the conditions needed for success (Pfeffer and Salancik, 1978). The lack of control that is inherent in interdependence yields uncertainty for organizations and to cope with this uncertainty, organizations work to increase collaboration with other actors in their environments or engage in balancing mechanisms to alter dependence asymmetry levels (Emerson, 1962; Pfeffer and Salancik, 1978). The matching theory of alliance formation's primary tenet is that relationships must consider the preferences, opportunities, and constraints of all parties by utilizing information regarding each party's resources and capabilities (Mitsuhashi and Greve, 2009). Most prominently, it highlights that decisions regarding alliance formation are not just dependent on how managers judge easily

observable tangible resources but also dependent on how they judge unobservable intangible resources when signals are available (Mitsuhashi and Greve, 2009). Based on RDT and matching theory, we examine how NGO resource capabilities can be leveraged as a balancing mechanism, through the emergence of status or increasing the powerful member's motivational investment (Emerson, 1962), and as a resource signal of their intangible resources to the motivation and willingness of private organizations to engage in collaborative partnerships. Furthermore, we examine how the environmental difference between the response stage and the preparation stage influences these balancing operations. We administered a 2 x 2, full factorial, scenario-based vignette experiment using 202 supply chain operation managers to evaluate these relationships. This method is appropriate as it allows us to observe the reactions and decisions of supply chain operations managers in response to not easily observable or unobservable factors in complex phenomena (Li et al., 2013; Rungtusanatham et al., 2011).

This study makes several contributions to the partnership and alliance formation, disaster management, and humanitarian operations literature. First, in line with RDT, our research design enabled us to find that NGO resource capabilities act as a mechanism effectively balancing power and dependence asymmetries between private organizations and NGOs. In line with matching theory, we also find that it operates as a resource signal that influences manager perceptions and judgments, as well as alliance formation decisions. Second, by integrating both theories, we were also able to evaluate similar, yet distinct theoretical pathways to private-NGO partnerships. We find that both the operationalization of motivational investment via RDT (i.e., resource importance) and the matching theory (i.e., social capital) directly influence private-NGO partnerships. However, we find that NGO resource capabilities have a stronger relationship with social capital as compared to resource importance. This is further emphasized in their roles as

mediators. As such, these findings further tease out the nuanced effects of NGO resource capabilities as a motivating versus an attitudinal mechanism for private organization managers. Finally, we contribute to the literature by examining these relationships across the preparedness and response disaster relief stages. In contrast to the humanitarian operations literature, we find that the relief stage either produces a negative moderation effect or does not operate moderator between motivational investment and private-NGO partnerships. Overall, we contribute to the private-NGO partnership literature (Nurmala et al., 2017; Moshtari and Vanpoucke et al., 2021) by providing valuable insights for NGOs regarding how NGOs can leverage their resource capabilities to influence the behaviors and decision-making of private organizations regarding disaster management partnership formation.

Theoretical Framework and Hypotheses Development

According to RDT, organizational behavior and outcomes are contingent on the context in which the organization is embedded (Pfeffer and Salancik, 1978). Because organizations cannot control all aspects of their environment, or the conditions necessary to achieve their desired outcomes, this creates a level of interdependence and uncertainty (Pfeffer and Salancik, 1978). To cope with this uncertainty, organizations engage in social or exchange relationships that revolve around increasing collaboration through mutual control over each other's behaviors (Pfeffer and Salancik, 1978). While organizations may strive for mutual control and dependence, interdependencies are not always balanced or symmetric.

Emerson (1962) described dependence as being directly proportional to the motivational investment of organization "A" in its goal mediated by organization "B" and inversely proportional to the availability of those goals outside of the relationship. Similarly, Pfeffer and Salancik (1978) described dependence as the product of the level of importance or need of a resource to an

organization and the extent to which it is controlled relatively. As such, dependence asymmetries exist when relationships or exchange is not equally important to both organizations (Pfeffer and Salancik, 1978). In turn, this can produce power advantages and disadvantages, which result from a lack of reciprocity in the social relationship and level of control an organization has (or does not have) the resources they value (Emerson, 1962). Power advantages and disadvantages upset the cohesion or joint dependence between organizations, producing an unstable relationship. When this occurs, the organization that is at a power disadvantage will be forced to engage in cost reduction or balancing operations to create a more stable and interdependent relationship (Emerson, 1962). In this study, we focus on balancing operations specifically, or actions that fundamentally change the structure of the social relationship and restore balance either through increasing the dependence of the less dependent organization or decreasing the dependence of the more dependent organization (Emerson, 1962).

NGOs are voluntary, independent organizations that aim to provide aid to, empower, advocate for, and overall serve, those in need (Beamon and Balcik, 2008; Berger, 2003). Furthermore, they are highly dependent on upstream entities to provide both products and funds necessary for the supply chain to operate (Day et al., 2012). While private organizations are under increased pressure to become more socially responsible, their involvement in relief efforts centers around their main goal of maximizing profits and value for their stakeholders. Therefore, we view NGOs as the more dependent organization, at a power disadvantage, as they are inherently more invested in the outcomes of relief efforts than that of private organizations and more dependent on the physical resources and investment provided by private organizations to achieve their goals (Diehlmann et al., 2021; Izumi and Shaw, 2015). As such, NGOs must engage in balancing

operations to manage their dependence asymmetry and create a more balanced and collaborative relationship.

Private organizations are motivated to collaborate with NGOs to demonstrate their corporate social responsibility and improve their reputations which can lead to increased value for their business (Moshtari and Vanpoucke, 2021). This relates directly to the 'emergence of status' dimensions of balancing operations. The emergence of status focuses on increasing the motivational investment of the more powerful organization by providing them with 'rewards of status' (Emerson, 1962) or, in this context, improvements in reputation. NGOs possess three resource capabilities that can aid in increasing the status of private organizations and their chances for increased collaboration. First, is their legitimacy. As mentioned, private organizations do not have the legitimacy to work independently in a humanitarian setting (Moshtari and Vanpoucke, 2021). Second, NGOs possess established relationship networks and operational expertise tailored to operating in and managing uncertainty in relief environments. As such, by leveraging an NGOs relationship network and operational expertise, private organizations may gain increased access to knowledge and capabilities that allow them to better respond to community needs and navigate the uncertainty of the relief operational environment. This can help aid in improving services offered to communities while also reducing costs associated with meeting their dynamic demands. Hence, by partnering with NGOs, private organizations are better positioned to operate in a relief setting, meet their corporate social responsibility goals, improve their increase their reputation, and increase their value. Therefore, we contend that NGO resource capabilities can act as a balancing operations mechanism and influence a private organization's motivational investment and collaborative efforts between private organizations and NGOs. Thus, we propose the following hypothesis:

H1: NGO resource capabilities are positively related to a private organization's motivational investment.

Relating to RDT, the matching theory of alliance formation contends that alliances are formed when all parties view collaboration as mutually beneficial. This is jointly determined by the mutual fit, or level of match quality, between resources. As such, a level of interdependency balance, in which both parties must need the resources the other provides, is necessary for a match to occur (Mitsuhashi and Greve, 2009). While match quality is primarily affected by tangible resources, as they are easily observable, the matching theory also indicates that intangible resources, which are often unobservable, when signaled to the other party (Mitsuhashi and Greve, 2009). Furthermore, signals related to intangible resources such as reputation, networks, and knowledge, are considered particularly valuable for organizations when the resources are complementary, provide access to new markets, and improve service quality (Mitsuhashi and Greve, 2009). Therefore, we contend that NGO resource capabilities can also be considered a signal of their intangible resources and improve perceptions of match quality and the formation of private-NGO partnerships. Thus, we propose the following hypotheses:

H2: NGO resource capabilities are positively related to private-NGO partnerships.

As mentioned, the collaboration between private organizations and NGOs is directly related to the motivational investment of the private organization in the resources or goals of the NGO. Furthermore, the impact of NGO balancing operations, or resource capabilities, on private-NGO partnerships is dependent on the level of motivational investment created in response. As such, RDT contends that motivational investment effectively acts as a mediator between balancing operations and collaborative partnerships (Emerson, 1962). Similarly, the matching theory highlights that alliance formation is dependent on match quality, or how managers perceive

resources as beneficial and complementary (Mitsuhashi and Greve, 2009). As such, signals of intangible resources influence alliance formation via the perceptions of managers. Therefore, in line with both RDT and the matching theory, we contend that a private organization's motivational investment directly influences private-NGO partnerships and operates as a mediator between NGO resource capabilities and private-NGO partnerships. Therefore, we propose the following hypotheses:

H3: Private organization motivational investment is positively related to private-NGO partnerships.

H4: Private organization motivational investment mediates the relationship between NGO resource capabilities and private-NGO partnerships.

While the overall goal and motivation for private organizations to become involved in relief efforts and partner with NGOs centers around their corporate social responsibility goals and reputations, the literature highlights that their strategic goals differ based on the stage of the disaster (Day et al., 2012). For instance, most private-NGO relationships begin with short-term programs focusing on the response and recovery stage of disaster relief. In this stage, a focus is placed on creating responsive operations that are adaptable to local conditions, receiving credit for corporate social responsibility initiatives, and increasing one's visibility in the market (Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). These goals differ drastically, in the preparedness stage as private organizations become primarily driven by maximizing profit and financial returns for shareholders (Beamon and Balcik, 2008; Moshtari and Vanpoucke, 2021). Furthermore, humanitarian literature highlights that private organizations are more likely to invest in relief efforts during the response stage, while media attention and beneficiary need are at their peak, rather than long-term initiatives (Kovács and Spens, 2007; Moshtari and Vanpoucke, 2021).

Therefore, we contend that private organizations are more motivationally invested in the response versus the preparedness stage of disaster relief. Therefore, we propose the following hypothesis: (Figure 1 in Appendix D illustrates the theoretical framework)

> **H5:** The disaster relief stage positively moderates the relationship between private organization motivational investment and private-NGO partnerships.

Methodology: Scenario-Based Experiment

To assess our hypotheses, we collected data utilizing an SBRP vignette experiment (Eckerd et al., 2021; Rungtusanatham et al., 2011). We used a 2 x 2 full factorial, between-subjects design involving four versions of a descriptive vignette. This method allows us to analyze how participants react and respond to various levels of factors of interest by situating them in assumed roles that closely mirror reality (Peinkofer et al. 2022; Polyviou et al., 2018). Furthermore, it is particularly appropriate when examining how individuals respond to their operating environment, especially among participants who have an appropriate grasp of the experimental context (Eckerd et al., 2021). As such, we collected data utilizing 202 private sector supply chain operations managers.

Vignette Design

Vignettes are most effective when the various manipulation scenarios realistically depict the operating environment. Therefore, to develop our four vignette scenarios we followed the three-step vignette design process established by previous research (Rungtusanatham et al, 2011). First, we focused on gathering information to gain insights into the context and factors of interest (i.e., the Pre-Design Stage). Therefore, we reviewed scholarly articles across humanitarian disaster and humanitarian service operations literature that describe the prominence of logistics service providers (LSPs) in achieving humanitarian goals (Bealt et al., 2016; Nurmala et al., 2017) and the

need for humanitarian NGOs to reconfigure their roles and relationships as LSPs to co-create transformative value (Heaslip et al., 2015; Obaze, 2019) in disaster management settings. Additionally, the literature also illustrates how retailers are the most affected and, therefore, active industry in the disaster management context and the most dependent on the decisions of their employees and customers to remain operational (Johnson et al., 2011; Martinelli et al., 2018). Therefore, we also engaged with retail Emergency Operations managers, LSP practitioners, and NGO managers to gain insights into their decision-making and collaborative experiences. Finally, we explored the mission statements, visions, and goals of the most prominent private LSPs with disaster relief experience (i.e., DHL, FedEx, UPS) and humanitarian LSPs (i.e., ALAN, Logistics Cluster, World Food Programme). We utilized these insights to draft vignettes that reflect realistic disaster management and partnership decision-making scenarios (i.e., the Design Stage). Finally (i.e., Post-Design Stage), we engaged with university faculty members with expertise in operations management, behavioral experiments, and vignette design to assess the vignettes and experimental design. We also engaged practitioners with disaster management experience to evaluate the realism of the vignettes and manipulation effectiveness. Lastly, we conducted a pre-test to quantitatively evaluate the vignettes' realism, manipulations' effectiveness, and overall experimental design.

Common module: Baseline Context and Controls

In the common module, we conveyed that (a) participants assume the role of a Supply Chain Manager for a retail company (Ta et al., 2018) as the manager of the Emergency Operations Center; (b) their responsibilities include developing and managing emergency and disaster management activities, coordinating all emergency and crisis management partnerships, maintaining the readiness and continuation of supply chain operations, and maintaining the organization's brand and reputation; (c) there is an increased risk of disastrous events that can severely disrupt business

operations and negatively impact the surrounding communities; (c) they are tasked with assessing an organization as a potential partner to aid their supply chain operations and personnel. Participants were then presented with (a) a description of the current situation and state of their organization and (b) a description of the potential partner organization.

Experimental module: Experimental Cues for NGO resource capabilities and relief stage

We developed four experimental scenarios that resulted in a 2 x 2, full factorial, between-subjects design with the NGO resource capabilities and the relief stage manipulated at two levels. NGO resource capabilities were manipulated at two levels to reflect the potential partner organizations as either a non-NGO, commercial LSP, or an NGO, humanitarian LSP. The manipulations focused on legitimacy, networks, and operational expertise as they are considered the primary resources both commercial and NGO LSPs can leverage to increase collaboration in disaster management settings (Bealt, et al., 2016; Moshtari and Vanpoucke, 2021). The relief stage was reflected at two levels to reflect the preparedness stage and the response stage. Humanitarian Operations literature has consistently highlighted the importance and difficulties of private-NGO partnerships across disaster relief stages, particularly that of the preparedness and response stages (Chen et al., 2013; Moshtari and Vanpoucke, 2021; Tatham and Pettit, 2010). Table 2 in Appendix D provides details of the common module and experimental cues.

Dependent Variables: Motivational Investment and Private-NGO Partnership

Following the vignette scenario, participants were asked questions about the potential variables of interest regarding private organization motivational investment and private-NGO partnership. To assess the role of private organization motivational investment in our model, we operationalized two variables to conceptualize and assess its relation to our experimental cues and private-NGO partnerships, and role as a mediator. Pfeffer and Salancik (1978) describe how dependence is a

result of the importance and need of the resources controlled by an organization. As such, organizations are more motivated by and likely to establish relationships with organizations that possess important resources. Furthermore, Mitsuhashi and Greve (2009) highlight that organizational resource signals also influence the likelihood of establishing relationships, especially when pursuing new alliance opportunities. Specifically, match quality is not just a function of the fit between observable, tangible resources but also of how managers judge signals regarding unobservable, intangible resources. Therefore, in line with RDT, we first operationalize motivational investment via resource importance, the extent to which the organization requires the resource for its continued operation and survival (Pfeffer and Salancik, 1978). Resource importance is measured using an adopted 5-point Likert scale (1=not at all important to 5=extremely important) that was previously validated (Meznar and Nigh, 2008). As resource importance is a single-item construct, we also operationalize motivational investment in line with the matching theory. As a reflection of match quality, we utilize social capital or the sum of the actual and potential resources embedded, available, and derived from relationships (Nahapiet and Ghoshal, 1998). Social capital is considered a critical factor in the formation and sustainability of disaster management partnerships as it emphasizes relational outcomes and provides value to intangible resources as sources of dependence and motivation (Chen et al., 2013). Furthermore, it reflects the level of social or relational compatibility between organizations (Mitsuhashi and Greve, 2009; Nahapiet and Ghoshal, 1998) which is often cited as a barrier to private-NGO partnerships (Bealt et al., 2016; Maitland et al., 2009). Social capital is measured using the three dimensions of social capital: structural, relational, and cognitive embeddedness (Nahapiet and Ghoshal, 1998). We used social interaction ties to measure structural embeddedness, the configuration of and connections within the partnership network (Moshtari and Vanpoucke, 2021).

Swift trust is used to measure relational embeddedness, the qualities of relationships that enable collaboration among partners (Moshtari and Vanpoucke, 2021). We specifically focus on swift trust in this context as it reflects trust hastily formed in response to emergent situations in operational environments focused on achieving goals under serve time pressure (Dubey et al., 2019). Finally, we measure cognitive embeddedness, the degree to which parties share common goals, via shared vision (Moshtari and Vanpoucke, 2021). All social capital embeddedness constructs are measured via previously validated five-point Likert scales (1=strongly disagree to 5=strongly agree) (Dobrzykowski and Tarafdar, 2015; Dubey et al., 2019; Leana and Pil, 2006).

To operationalize private-NGO partnerships, we also utilized two variables: likelihood to partner and partner attractiveness. The likelihood to partner construct reflects the probability that the respondent would recommend a partnership alliance with the organization described (Hitt et al., 2000). As the likelihood to partner is a single-item construct, we also utilized partner attractiveness. It reflects the degree to which an organization views a partner as desirable, favorable, appealing, and valuable (Shah and Swaminathan, 2008). Both, likelihood to partner and partner attractiveness, have been consistently used in the strategic alliance literature as measures for partner selection and are measured via previously validated five-point Likert scales (Likelihood: 1=extremely unlikely to 5=extremely likely; Attractiveness: 1=strongly disagree to 5=strongly agree) (Hitt et al., 2000; Shah and Swaminathan, 2008).

Control Variables: Supply Chain Disruption Orientation, Firm Resilience, Brand Loyalty

Literature highlights that organizational culture, mandates, and related experience can influence individual and firm behaviors and decisions and play a critical role in the formation of partnerships and the level of investment across relief stages (Chen et al., 2013; Johnson et al., 2010; Mitsuhashi and Greve, 2009; Moshtari and Vanpoucke, 2021). As such, to control potential confounds, we

included three context-related control variables regarding supply chain disruption-related culture, mandates, and experience of the organizations in which the participants currently work. First, we include supply chain disruption orientation, which reflects a firm's recognition and awareness of potential disruptions and how they analyze and learn from prior disruptions (Ambulkar et al., 2015). Next, we include firm resilience which reflects the capabilities of the firm to be alert, adaptable, and responsive to changes caused by supply chain disruptions (Ambulkar et al., 2015). Finally, as brand visibility and reputation are often cited as primary reasons to engage in partnerships with NGOs, we also included a measure for perceived customer relationship investment. This scale is adapted to reflect the extent to which a firm devotes resources, efforts, and attention to maintaining or enhancing relationships with customers (De Wulf et al., 2001). All control constructs were measured via previously validated five-point Likert scales (1=strongly disagree to 5=strongly agree) (Ambulkar et al., 2015; De Wulf et al., 2001). Finally, we control age, gender, ethnicity, education, experience, and industry. Table 3 in Appendix D provides details of the measurement items, and Table 5 provides details of the descriptive statistics of the variables.

Participants and Experimental Procedures

In this study, we applied an online approach for this experiment. We utilized Prolific, an online crowdsourcing platform that caters to researchers and is widely used throughout behavioral operations and experiments across disciplines. It has been shown to provide a more diverse population group than other platforms while producing high-quality data (Palan and Schitter, 2018). Furthermore, this platform enables researchers to screen and recruit participants who meet specific criteria. As such, we were able to recruit a diverse group of participants who are supply chain operations managers.

It also enabled the inclusion of attention checks. We include three attention-check filters (i.e., memory recall, logical statement, directed query) to further evaluate the quality of participant responses (Abbey and Meloy, 2017). The memory recall questions verified whether participants attentively read the vignettes ("For Retail Co., you are tasked with assessing an organization as a potential partner to aid your supply chain operations and personnel: True/false"). The logical statement ("Please select the opposite of angry out of the response choices below") verifies whether participants' adequacy of the English language. The direct query asked participants to "select somewhat agree" on a 5-point Likert scale. Finally, we utilized cookies and IP address checks, and Prolific's unique ID system to assess the quality and prevent participants from repeatedly taking the survey (Palan and Schitter, 2018; Schoenherr et al., 2015). We initially recruited a total of 203 participants. Of the 203 recruited participants, 202 passed the attention and data checks.

We randomly assigned participants to one of four versions of the vignette scenarios resulting in a distribution of at least 50 participants per scenario (Eckerd et al., 2021). Data was collected over a period of two weeks. Participants were instructed to assume the role of the Emergency Operation Center supply chain manager and carefully read the vignette scenario and the following questions. Following the scenarios, participants were asked to answer questions related to our dependent variables, three attention check questions, and manipulation check questions, all of which were randomly ordered. Finally, the participants were asked questions regarding the control variables and demographics, realism, and social desirability. On average, participants completed the experiment in 11.25 minutes. Table 4 in Appendix D provides the detailed demographic characteristics of the sample.

Experimental Checks

Realism checks consisted of two questions evaluated on a five-point Likert scale (1=strongly disagree to 5=strongly agree) (Dabholkar, 1994). Results showed that participants found the scenarios to be realistic (μ=4.29, σ=0.65) and had little difficulty imaging themselves in the scenario (μ=4.21, σ=0.91).

The manipulation checks asked participants to rate if they consider the potential partner organization to (a) be a legitimate disaster management partner (non-NGO: μ=3.92; NGO; μ=4.30), (b) have an extensive network of disaster management partners (non-NGO: μ=3.82; NGO; μ=4.17), (c) have disaster management capabilities and expertise (non-NGO: μ=3.90; NGO; μ=4.30), (d) have disaster management experience (non-NGO: μ=3.87; NGO; μ=4.36), (e) have experience with disastrous events (non-NGO: μ=3.81; NGO; μ=4.43) and (f) illustrate if Retail Co.'s is concerned with (1) planning and preparing for potential future disastrous events or (2) responding to a current disastrous event (preparedness: μ=1.05; response: μ=1.74). In all cases, the analysis shows that NGOs are perceived as more legitimate, experienced, capable, and have a more relevant network of partners in a disaster management context and that each relief stage is accurately depicted.

We also took steps to address the potential for demand characteristic concerns that may inadvertently influence participants' responses (Thomas et al., 2020). We employed multiple techniques to minimize demand characteristics and ensure the validity of the experiment and the dependability of the responses. In line with recognized practices, we included a baseline condition (Lonati et al., 2018) and utilized a randomized between-subjects design (Abbey et al., 2018; Antonakis et al., 2010; Ta et al., 2018). We guaranteed the anonymity of all participants and

ensured that there were no wrong or right answers (Thomas et al., 2020). Finally, we included a measure of social desirability adapted from the Marlow-Crowe scale (Lorentz et al., 2012).

Lastly, we addressed potential issues related to common method bias in line with the operations management literature (Franke et al., 2021). Based on Williams et al. (2010), we utilized a marker variable to assess the level of shared variance amongst our variables in the measurement model. In line with previous research, we utilized the three-item social desirability scale as our marker items (Williams et al., 2009). We find that including these items as markers and loading them onto all other substantial variable items does not improve the model fit. The chi-square (χ^2) model comparison test illustrates a non-significant difference when comparing measurement models (See Table 6). Additionally, we examined the potential for common method bias utilizing the marker latent variable technique (Podsakoff et al., 2003; Richardson et al., 2009; Williams et al., 2009). We find that the average variance explained is greater for the substantive constructs (0.69) as compared to the marker latent variable (0.04). Furthermore, the lambda values remained significant on their intended latent construct for each substantive variable. **Analysis and Results**

NGO resource capabilities and Motivational Investment

We used hierarchical multiple regression in SPSS version 26 to evaluate the direct effect of NGO resource capabilities on private organizational motivational investment (resource importance and social capital) and private-NGO partnerships (likelihood to partner and partner attractiveness). H1 posits that NGO resource capabilities are positively associated with private organizations' motivational investment, while H2 posits that NGO resource capabilities are positively associated with private-NGO partnerships. Results show that NGO resource capabilities have a positive, yet moderate, influence on resource importance (β=0.18, t=1.66, p=0.098) and a significantly positive

influence on social capital (β=0.22, t=2.36, p=0.019), providing some support for H1. Regarding H2, results show that NGO resource capabilities have a significantly positive influence on both the likelihood to partner (β=0.27, t=2.11, p=0.036) and partner attractiveness (β=0.29, t=2.63, p=0.009), providing support for H2. Regarding our control variables, results show that perceived customer relationship investment is significantly related to all outcome variables while supply chain disruption orientation is significant with all outcome variables except resource importance. Additionally, industry control is significantly related to resource importance and social capital, while education is significantly related to social capital. All other controls are non-significant. Table 7 in Appendix D presents the direct effect results in detail.

Motivational Investment Mediation

H3 posits that motivational investment is positively associated with private-NGO partnerships, whereas H4 posits that motivational investment mediates the relationship between NGO resource capabilities and private-NGO partnerships. To evaluate the direct (H3) and mediation effects (H4) of motivational investment, we utilized the Hayes Process Model 4 (95% confidence interval). Regarding resource importance, results indicate that resource importance is positively associated with the likelihood to partner (β=0.67, t=8.89, p<0.00) and partner attractiveness (β=0.59, t=9.18, p<0.00. Given that NGO resource capabilities are only moderately related to resource importance, results indicate that resource importance operates as a mediator at the 90% confidence level. Specifically, resource importance operates as a moderate, but full, indirect only mediator between NGO resource capabilities and likelihood to partner (β=0.12, 90% CI=0.007, 0.25) and a moderate, but partial, complementary mediator between NGO resource capabilities and partner attractiveness (β=0.10, 90% CI=0.003, 0.22) (Zhao et al., 2010). As such, the results provide support for H3 and some support for H4.

Regarding social capital, results indicate that social capital is positively associated with the likelihood to partner (β=0.98, t=13.77, p<0.00) and partner attractiveness (β=0.93, t=12.17, p<0.00). Additionally, results indicate that social capital operates as a full, indirect only mediator between (Zhao et al., 2010) between NGO resources capabilities and both the likelihood to partner (β=0.22, CI=0.05, 0.41) and partner attractiveness (β=0.21, CI=0.04, 0.40) at the 95% confidence level. As such, the results provide support for H3 and H4. Tables 8 and 9 in Appendix D present the mediation results in detail.

Relief Stage Moderation

H5 posits that the relief stage positively moderates the relationship between motivational investment and private-NGO partnerships. To examine the potential moderation effects of the relief stage, we utilized Hayes Process Model 14. This allows us to analyze the direct effects of the moderator and its interaction effects, and to examine the conditional indirect, mediation, at each level of NGO resource capabilities.

For resource importance, results indicate that the relief stage does not significantly moderate the relationship between resource importance and likelihood to partner (β= -0.22 t= -1.59, p=0.11). Conversely, results show that the relief stage negatively moderates the relationship between resource importance and partner attractiveness (β= -0.32, t= -2.83, p<0.01). While the moderate indirect effects of NGO resource capabilities on partner attractiveness hold at both levels of NGO resource capabilities (90% confidence interval), we do find that there is a moderately negative moderated mediation effect (β= -0.06, 90% CI= -0.13, -0.001) indicating a significant decrease in the indirect effect during the response stage as opposed to the preparedness stage at the 90% confidence level.

For social capital, results show that the relief stage does not operate as a moderator between social capital and likelihood to partner (β= -0.03, t= -0.29, p=0.85) nor partner attractiveness (β=0.01, t= -0.08, p=0.93) at the 95% confidence level. Overall, the results fail to support H5.

Discussion

This study makes several contributions to the literature regarding partnership selection and alliance formation, disaster management, and humanitarian operations literature. First, we address and extend the discussion regarding collaboration between NGOs and private organizations. We extend literature regarding the use of legitimacy and other intangible resources as a means for increased collaboration (Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). As such, we address calls for understanding factors that affect the development of private-NGO partnerships (Nurmala et al., 2017). Next, we utilize two theories to investigate how NGO resource capabilities may influence partnership decisions (Emerson, 1962; Pfeffer and Salancik, 1978; Mitsuhashi and Greve, 2009). As such, we contribute to the literature by examining mechanisms to private-NGO partnerships from the perspective of dependence and power as well as information availability and relationship quality Bealt et al., 2015; Hingley et al., 2011; Moshtari and Vanpoucke, 2021). Finally, we contribute to the literature by evaluating these relationships across disaster relief stages (Sheffi and Rice, 2005; Day et al., 2012; Shah and Swaminathan, 2008).

Theoretical Contributions

We provide evidence that NGO resource capabilities motivate private organizations, influence their attitudes toward NGOs, and directly and indirectly affect their willingness to form partnerships with NGOs. As such, this study makes several theoretical contributions. First, it extends RDT in the disaster management and humanitarian operations literature by examining private-NGO partnership formation from a power and dependence perspective. Humanitarian and

supply chain operations literature has highlighted how private organizations, especially retailers, may be reluctant to engage in collaborative partnerships due to power imbalance and self-interest (Bealt et al., 2016; Hingley et al., 2011). As NGOs are often the more dependent partner, we address these collaborative barriers by emphasizing NGO resources capabilities as a power balance mechanism (i.e., balancing operation). Specifically, via the 'emergence of status' NGOs can actively influence their position as potential partners. This adds to the literature by highlighting how NGOs can leverage the reputational risk and preservation concerns of private organizations to improve power imbalances and motivate their involvement in private-NGO partnerships (Moshtari, 2016; Moshtari et al., 2021).

Second, this study also extends the matching theory of alliance formation in the disaster management and humanitarian operations context. The matching theory highlights that alliance formation is a selective process in which partnership likelihood stems from manager judgments or evaluation of organizational characteristics (Mitsuhashi and Greve, 2009; Powell et al., 2005). Specifically, how these judgments weigh against strategic and social advantages. Therefore, much of the alliance formation literature focuses on tangible resources and preexisting connections which allow for easy observations of characteristics (Mitsuhashi and Greve, 2009). As such, we add to the literature by focusing on new alliance opportunities. Specifically, we find that signals from intangible resources, and unobservable characteristics, improve manager perceptions of match quality from a social perspective. This is salient as the alliance formation literature stresses that further understanding of 'what kinds' of resources influence alliance likelihood is especially beneficial in the context of new alliance opportunities (Rothaermal and Boeker, 2008). Additionally, it adds to the literature by highlighting the influence of intangible resource signals

as a catalyst for partnerships and alliance formation, especially when they are complementary (Chen et al., 2013; Mitsuhashi and Greve, 2009; Moshtari, 2016).

Additionally, we add to these literature streams via matching theory by addressing the relationships between complementarity and compatibility. Complementarity and compatibility are considered extensions of matching theory and are important in the development of partnerships and alliances (McLachlin and Larson, 2011; Mitsuhashi and Greve, 2009). While they can both be relevant factors when judging match quality, they are considered independent criteria. Thus, they are often evaluated in isolation. In this study, we primarily highlight how NGOs can influence partnerships through the provision of complementary resources. However, the literature also highlights the importance of social compatibility in private-NGO partnerships (McLachlin and Larson, 2011). Specifically, the humanitarian operations literature often cites social compatibility concerns as primary barriers to private-NGO collaborative efforts (Bealt et al., 2016; Maitland et al., 2009), while complementarity is cited as the primary influencer of collaborative partnerships (Moshtari, 2016). We add to this literature stream by providing evidence that signals of resource complementarity (i.e., NGO resource capabilities) improve social compatibility via increased social capital. Furthermore, we find that social capital not only directly influences private-NGO partnerships but fully mediates the relationship between NGO resource capabilities and private-NGO partnerships. As such, we contend that the impact of social compatibility may be dependent on the complementarity of resources.

We also add to the literature by examining the underlining premises of both RDT and the matching theory independently. This is accomplished by including distinct mediating variables that specifically reflect the nuanced differences of each theory (RDT – resource importance; matching theory – social capital). Both RDT and the matching theory recognize that collaboration

is a function of both organizations' desire to possess the resources of the other and the availability of those resources. However, they differ in terms of how mutual desire is assessed. For instance, RDT achieves collaboration through a balance of power and dependency and focuses on manipulating imbalances through actions that motivate the other party (Emerson, 1962; Pfeffer and Salancik, 1978). In essence, both organizations must play on an equal field to consider an alliance. Matching theory achieves collaboration through perceived match quality or resource fit between organizations. It focuses on information availability and assessing resource fit relative to achieving their goals (Mitsuhashi and Greve, 2009). As such, organizations may form alliances if they are considered beneficial, regardless of power imbalances. While resource importance and social capital directly engender private-NGO partnerships, we find that NGO resource capabilities have a stronger influence on the development of social capital, as opposed to resource importance. Furthermore, we find that social capital consistently operates as a full mediator, while resource importance can operate as a partial mediator. This is an important distinction in the disaster management and humanitarian context as NGOs consistently operate as the less powerful, more dependent organization as they are non-profit organizations dependent on upstream donations to operate (Day et al., 2012). As such, this provides evidence that private-NGO partnerships are a function of resource fit and social compatibility rather than a balance of power and dependency.

Finally, we contribute to the literature by investigating how the influence of NGO resource capabilities may differ across disaster relief stages. Contrary to expectations, we find evidence that the disaster relief stage does not operate as a moderating variable or negatively moderates the relationship between motivational investment and private-NGO partnerships. Disaster management and humanitarian literature highlight how the priorities and goals of private organizations and, subsequently, their willingness to engage in relief partnerships differ depending

on the stage of the disaster (Beamon and Balcik, 2008; Kovács and Spens, 2007). Specifically, the literature highlights that private organizations collaborate and invest in relief efforts during the response stage as opposed to the preparedness stage (Day et al., 2012; Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). Our study shows that while private organizations' priorities may change, NGOs can still motivate private organizations to engage in partnerships regardless of the stage. It may be more beneficial for NGOs to address private organizations during the preparedness stage, as perceptions of resource importance decrease during the relief stage. This may hint at the notion that private organizations may have more time to evaluate the intangible resources in the preparedness stage, as opposed to the response stage. As private organizations' willingness to partner with NGOs in the response stage centers around visibility and responsiveness importance may play a lesser role in partnership selection. Overall, this is an important distinction as disaster preparedness is considered a cornerstone for improved disaster relief outcomes and resilience (Perry, 2007; Tatham and Pettit, 2010; Obaze, 2019).

Limitations and Future Research

Despite its contribution, this study has the following limitations that future research ought to investigate. First, while most private organizations engage in CSR initiatives, not all have a disaster relief focus or may focus on initiatives relevant to one or more relief stages. As such, it may be beneficial to investigate how the private organizations' specific CSR initiatives influence these relationships. Similarly, country-specific sustainability regulations and laws may also impact how private organizations develop their CSR focus and engage with potential partners (Gatti et al., 2019). Therefore, it may be imperative to examine how these relationships differ across countries and firm size (i.e., multi-national vs domestic).

Next, the primary focus of this study is to investigate if and how an NGOs intangible resource capabilities can be leveraged to increase collaboration between private organizations and NGOs. Based on the literature we specifically focused on legitimacy, relationship networks, and relief operational expertise (described in detail by Moshtari and Vanpoucke, 2021). As such, as a first step toward understanding the relationships between NGO resource capabilities and private-NGO partnerships, we examine these intangible resource capabilities in aggregate. However, research does highlight that legitimacy and reputation do operate as the primary motivator for a private organization's involvement (Nurmala et al., 2017). Similarly, private organizations are already the primary investors in disaster relief infrastructure and logistics. Furthermore, the research design focuses on LSPs, comparing NGOs (or humanitarian LSPs) to non-NGOs (or commercial LSPs). Although we had reasonable rationale regarding the importance of LSPs, not all NGOs have the logistical expertise to operate as LSPs. As such, research has also highlighted the potential for NGOs to outsource certain tasks to commercial LSPs (Vega and Roussat, 2014). Therefore, it would be prudent for future research to dissect these intangible resource capabilities. Future research could examine how the influence of each research capability differs in isolation and their various interaction effects. In return, it may provide deeper and more nuanced guidance for NGOs and their managers going forward.

Finally, this study utilized a between-subjects design to investigate these relationships. Between-subjects designs are considered the gold standard, as compared to within-subjects designs as they provide a higher level of randomization, control, and validity. While we do utilize previously validated dependent variables often used as proxies for partnership selection, the research design does not allow participants to examine both groups (i.e., NGO and non-NGO) to make informed partner selection decisions. As such, we contend that future research should utilize

a research design akin to a within-between-subjects design to empirically validate our findings via a categorical partner selection choice between potential partner organizations.

4. Dissertation Conclusion

Due to its complex and dynamic nature, service operations are often shaped by the unique social context which enables value cocreation (Beirão et al., 2017). As such, the literature highlights the need to examine service systems from a service ecosystem or holistic perspective across the whole context (Beirão et al., 2017). Examining the interactions of multiple actors, as resource integrators, allows for a deeper understating of how value cocreation is created, embedded, and interdependent across various levels of analysis (Beirão et al., 2017; Chandler and Vargo, 2011).

Therefore, this dissertation contributes to the humanitarian and service operations literature by focusing on how various operational characteristics, unique to the humanitarian relief context, influence operational outcomes at the micro, meso, and macro levels of analysis across each disaster relief stage.

The conceptual review on transformational value cocreation highlights the importance of understanding individual-level aid worker factors as well as organizational-level factors to create transformation value and increase operational performance in relief settings. Therefore, following the conceptual review, Essay 1 and Essay 2 examine how specific humanitarian operational characteristics, both external and organizational, may influence aid worker (paid staff and volunteers) commitments, retention, integration, and performance. Specifically, Essay 1 focuses on the micro-level or direct, face-to-face interactions between aid workers when responding to disasters (Serpa and Ferreira, 2019). It examines how exposure to traumatic events affects the integrative behaviors of aid workers via cooperation and organizational commitment. Essay 2 is situated at the meso-level, linking organizational (macro) factors with individual (micro) outcomes

(Esper and Peinkofer, 2017). It investigates how NGOs' religious affiliations influence their relationships with volunteers and, subsequently, volunteer satisfaction, commitment, and performance. Given that humanitarian outcomes are often an extension of the integrative behaviors and decisions of aid workers, and volunteers specifically represent an invaluable resource for NGOs, both essays contribute to the humanitarian literature by examining how aid workers' behaviors, decisions, and actions are influenced by their environment. Additionally, Essay 3 focuses on macro, inter-organizational relationships (Beirão et al., 2017). It addresses the importance of private organizations in disaster management settings as critical factors in the success of disaster relief outcomes and the creation of transformational value. Specifically, it evaluates mechanisms for private-NGO partnerships. Essay 3 examines how NGOs can leverage their resource capabilities to overcome collaboration barriers and motivate private organizations toward private-NGO partnerships. It emphasizes that while NGOs can be heavily dependent on private organizations and the resources they provide, they can utilize their unique position in the relief supply chain to balance power asymmetries and signal their value as a potential disaster management partner. As such, this essay contributes to the private-NGO partnership and disaster management literature streams.

Overall, each essay produces unique implications relevant to practitioners. Essay 1's micro-level approach provides implications relevant to the response and recovery relief stages for humanitarian NGOs and their managers in two distinct but related areas. Our first implication relates to the influence of trauma exposure on aid worker behaviors. Our results indicate that trauma exposure hinders cooperative commitment while having a positive influence on organizational commitment. Our findings suggest that when aid workers are exposed to trauma, humanitarian organizations ought to take action to support their psychological health and

cooperative behaviors. While trauma exposure may motivate aid workers to engage in aid work (manifested as organizational commitment in our study), it can be psychologically detrimental, preventing current and future attempts to develop and maintain social and cooperative relationships. Overall, even if aid workers remain committed to and retained by the organization, the inability of aid workers to effectively develop and maintain relationships may prove detrimental to the organization and the success of disaster relief over time. In contrast, our results also highlight that in a less or non-traumatic environment, more attention should be paid to the development of organizational commitment. As trauma exposure operates as a primary motivator for aid work, in its absence, more ownness should be placed on implementing alternative methods of motivating engagement for aid workers. Additionally, results indicate that overall organizational commitment is more detrimental to internal integration than cooperative commitment. Unlike cooperative commitment, low levels of organizational commitment significantly hinder internal integration. Furthermore, the benefits of organizational commitment to internal integration are not realized until it is relatively high. Overall, our findings suggest that organizational commitment may be more difficult to achieve in aid workers. Given that low levels of organizational commitment are shown to be detrimental to integration, it ought to be a primary focus of humanitarian organizations and their managers. Finally, our study provides implications in terms of supervisor support. Our results show that providing any form of supervisor support is better than not providing any support when exposed to trauma. As such, this essay contributes to the literature by illustrating how the humanitarian relief environment and interactions between individuals influence aid worker behaviors.

Essay 2 takes a meso-level approach integrating the preparedness and response stages of disaster relief. As such, results are particularly relevant for practitioners and NGOs. We emphasize

the critical crossroads for NGO managers, suggesting that faith-based NGOs may find it hard to develop social capital with non-religious volunteers, significantly decreasing volunteer satisfaction, commitment, and performance. NGOs that are not religion-focused face the same concerns as social capital development and volunteer outcomes from religious volunteers. Therefore, the results suggest that NGO managers should prioritize recruiting and retaining volunteers who match their organizations' religious beliefs. However, recruiting homogeneous volunteers presents a possible managerial crossroad, as increases in societal pressures toward enhanced diversity, openness, and acceptance may engender backlash toward NGOs. One of the drawbacks of strong social bonds and networks is the potential for social liability (Villena et al., 2011). Therefore, we contend that NGOs and NGO managers should produce an environment characterized by high congruence, encompassing all religious identities (Héliot et al., 2020). We do not suggest that faith-based NGOs simply distance themselves from their religious affiliations and networks to accomplish this goal. Religious affiliations of faith-based NGOs are not only a source of social capital together among like-minded volunteers but also a source of essential financial and in-kind donations. We contend that faith-based NGOs should develop a culture of respect for religious diversity within their organizations while simultaneously holding religious identifications for their donors. This approach may benefit both NGOs and donors.

Assuring that all individuals can freely express their religious beliefs allows NGOs to create a higher level of congruence (PO fit) with a diverse group of individuals (Héliot et al., 2020; Karakas et al., 2010; King and Franke, 2017). By doing so, NGOs may enhance social capital among a broad range of individuals, mitigate the potential negative effects of NGO religiousness, and improve individual outcomes. This result may enable NGOs to enhance their sustainability and effectiveness. In addition, this approach may also benefit their donor base by improving the

effective use of resources in a relief setting while promoting and operating under their religious beliefs. Furthermore, it may help improve the psychological benefits of helping others, often coveted by donors (Oloruntoba and Gary, 2009), and religious adherence. Finally, enhancing diversity and respect within the work environment may improve individual behavioral and operational outcomes and how they interact with beneficiaries. This result may improve an NGO's ability to provide psychological aid to beneficiaries, improving their reputation and the reputation of their religious faith. Overall, this study not only contributes to the humanitarian and service operations literature streams but also the social capital literature stream which emphasizes the need to examine the link between micro and macro social systems (Leana and Pil, 2006; Payne et al., 2011).

Essay 3 focuses on macro-level relationships, providing implications particularly relevant to NGOs and their managers and their ability to develop relationships in preparation for disasters. First, we provide NGOs with a means to overcome potential collaboration barriers and motivate private organizations to engage in strategic partnerships as compared to commercial LSPs. By providing signals regarding their resource capabilities, NGOs can ease concerns regarding their ability to provide value to the partnership. It may allow NGOs to signal that they possess valuable resources that can complement private organizations' corporate social responsibility initiatives and assist them in preserving or improving their reputations. Furthermore, we contend that it can also assist NGOs with overcoming inherent power imbalances and compatibility and resource misalignment barriers. As such, by highlighting their resource capabilities they can enhance partnership selection and outcomes. In return, NGOs may be able to better address operational concerns through access to supply chain expertise while maintaining the flow of resources needed to operate. Finally, results highlight that NGO resources capabilities operate as effective

partnership mechanisms across disaster relief stages and can be most effective during the preparedness stage. This is salient for NGOs and their managers as relief outcomes often reflect the level of preparedness and engagement of all disaster relief stakeholders. For instance, increased private-NGO partnerships may not only help NGOs improve short-term initiatives but also long-term initiatives in which long-term commitment is needed (Day et al., 2012; Moshtari and Vanpoucke, 2021; Nurmala et al., 2017). As such, this can result in increased co-creation within communities improving reliance and limiting the aid needed in future disaster relief settings.

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7. Appendices

Appendix A: Dissertation Overview

Figure 1: Dissertation Overview – Value Co-Creation

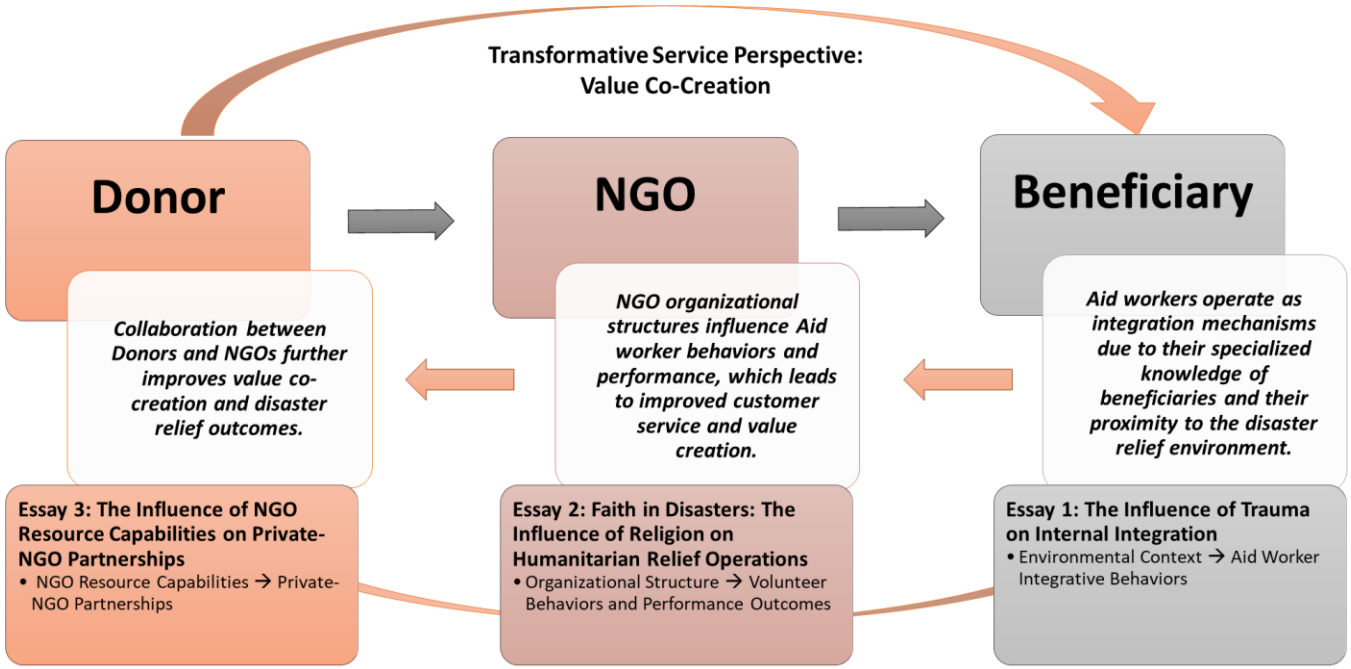


Figure 2: Dissertation Overview – Multilevel Focus

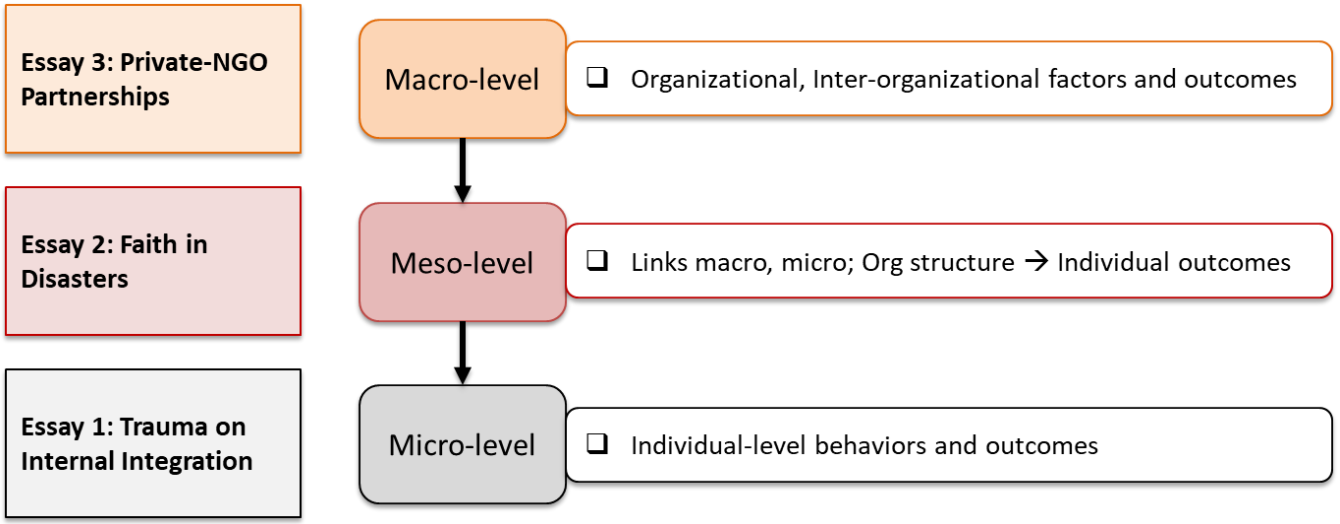


Figure 3: Dissertation Overview – Disaster Relief Stages

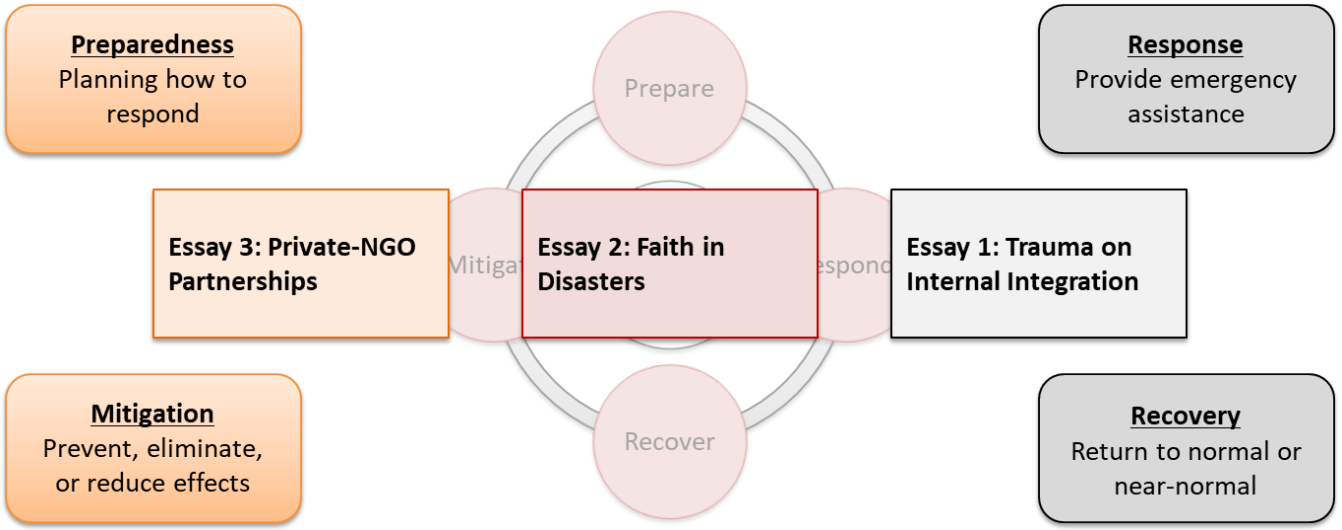


Figure 4: Essay 1 – IRB Approval Memo

To:	Llord C Brooks BELL 4188
From:	Douglas J Adams, Chair IRB Expedited Review
Date:	07/29/2020
Action:	**Exemption Granted**
Action Date:	07/29/2020
Protocol #:	2006269423
Study Title:	The Influence of Trauma on Cooperation in Disaster Relief Operations

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: David D Dobrzykowski, Investigator

Figure 5: Essay 2 – IRB Approval Memo

UNIVERSITY OF ARKANSAS

To:	Llord C Brooks
From:	Justin R Chimka, Chair IRB Expedited Review
Date:	08/04/2021
Action:	**Exemption Granted**
Action Date:	08/04/2021
Protocol #:	2107344416
Study Title:	Faith in Disasters: How Religion Impacts NGO Structures and Aid Worker Perceptions towards Supply Chain Disaster Performance

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: David D Dobrzykowski, Investigator
Iana Shaheen, Investigator

Figure 6: Essay 3 – IRB Approval Memo

UNIVERSITY OF ARKANSAS

To:	Llord C Brooks
From:	Douglas J Adams, Chair IRB Expedited Review
Date:	02/03/2023
Action:	**Exemption Granted**
Action Date:	02/03/2023
Protocol #:	2301444106
Study Title:	The Influence of NGO Resources Capabilities on Private-NGO Collaboration

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: John Aloysius, Investigator

Appendix B: Essay 1 – The Influence of Trauma Exposure

Figure 1: Theoretical Framework

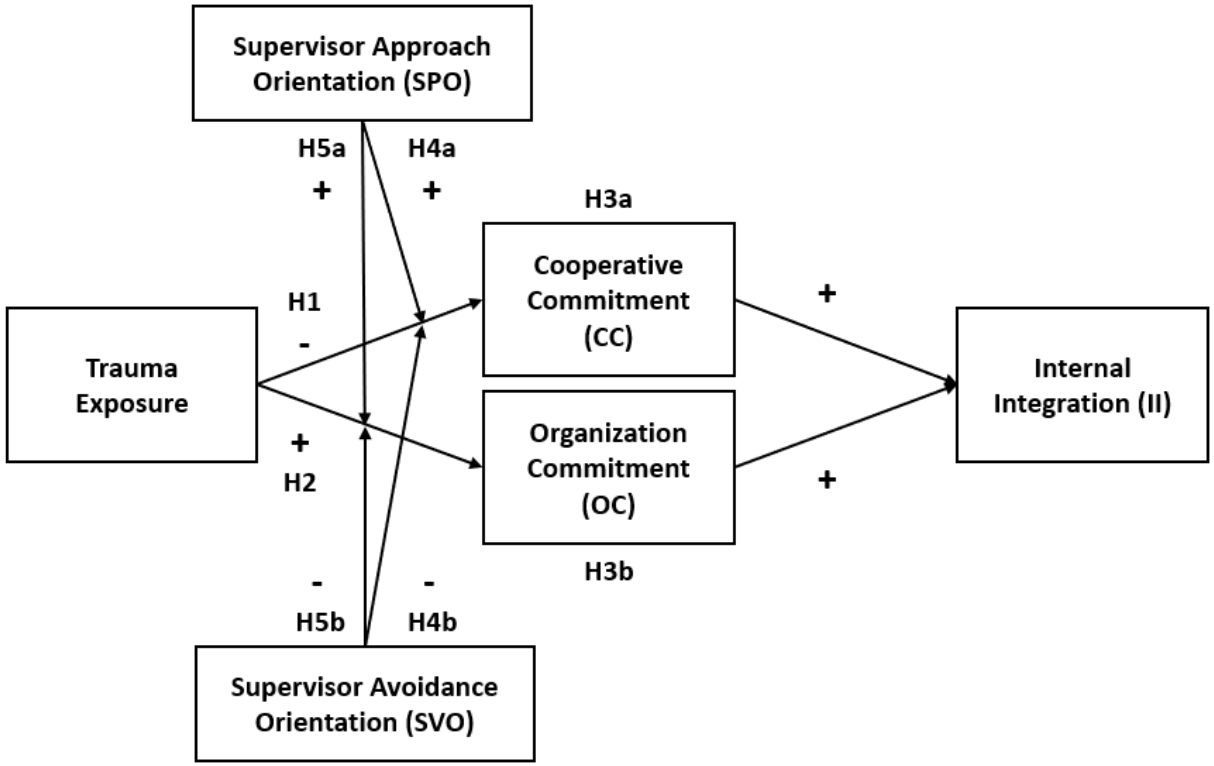
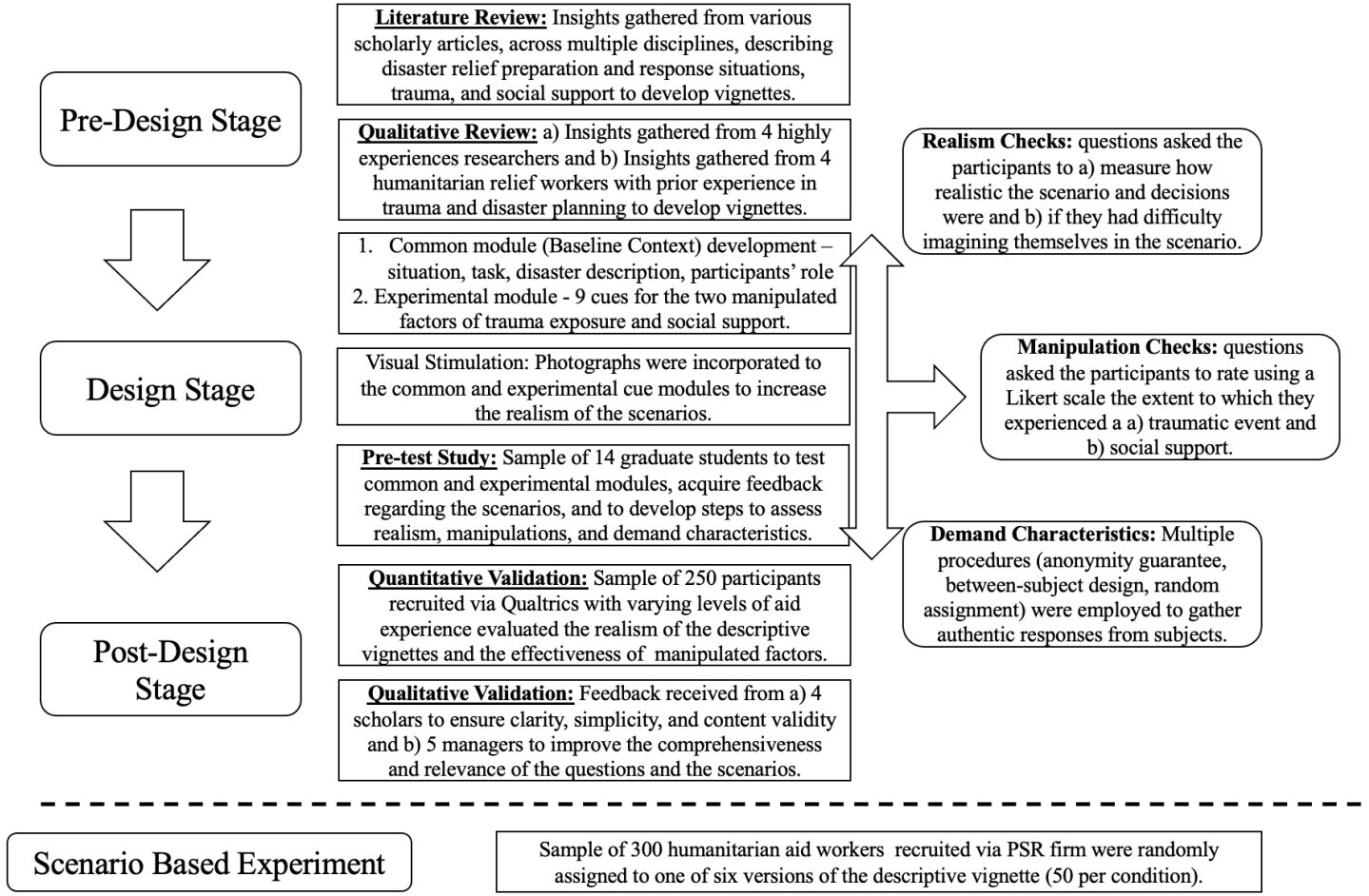
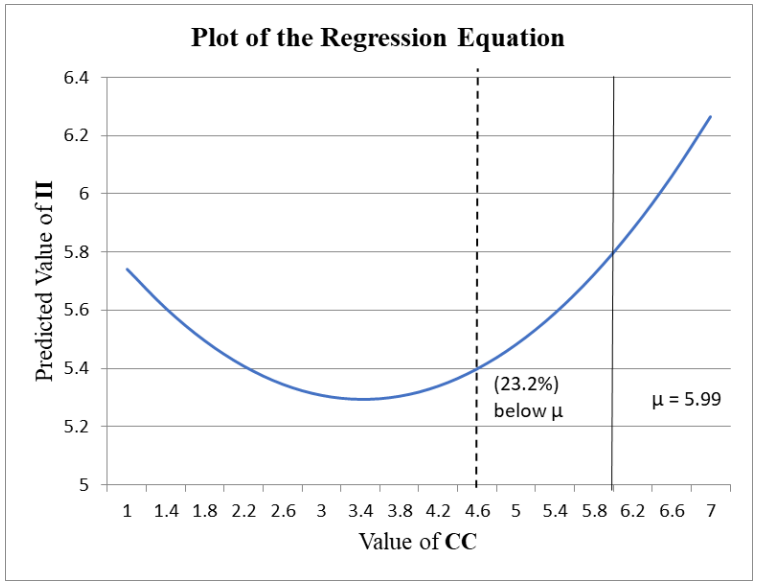


Figure 2: Methodological steps on experimental design and data collection



Figures 3 & 4: Quadratic Hierarchical Regression (*Dashed lines indicate the region of significance; solid lines locate the mean of the x-variable*)



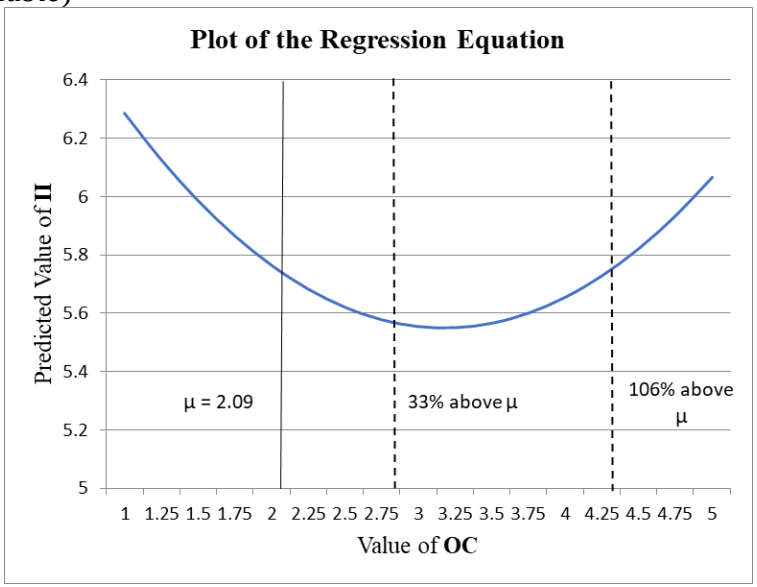


Table 1: Conceptual Definitions

Term	Definitions	References
Humanitarian Aid Worker	Personnel (e.g., volunteers, locally contracted staff, full-time employees, donors) of aid agencies that provide material and technical assistance during disaster relief operations.	Humanitarian Outcomes 2015, Salem et al. 2018
Trauma Exposure	Experiencing non-normative or highly distressing event(s) that potentially disrupts the self.	McCann and Pearlman 1990
Supervisor Support Orientation	Manager's provision of psychological resources intended to benefit an aid worker's ability to cope with trauma.	Cohen 2004
Supervisor Approach Orientation	Manager's empathetic attitude that encourages an aid worker's ability to process, internalize, and grow from the traumatic experience.	McGlashan et al. 1975, Roth and Cohen 1986,
Supervisor Avoidance Orientation	Manager's unempathetic attitude that encourages an aid worker's ability to repress, compartmentalize, and withdraw from the traumatic experience.	McGlashan et al. 1975, Roth and Cohen 1986,
Cooperative Commitment	The extent to which there is a willingness to work with others, share resources, and maintain the relationship even when it may not serve self-interest.	Chatman and Barsade 1995, Schmoltzi and Wallenburg 2012
Organizational Commitment	Emotional attachment to and perceived obligation to remain with the firm	Allen and Meyer 1990
Internal Integration	The extent to which intra-organizational operational processes are collaborative and synchronized	Flynn et al. 2010; Ataseven et al. 2018

Table 2: Experimental Assignment

	SPO	**SVO**	**NSO**
Trauma Exposure	Condition 1 (50 Respondents)	Condition 2 (50 Respondents)	Condition 3 (50 Respondents)
No Trauma Exposure	Condition 4 (50 Respondents)	Condition 5 (50 Respondents)	Condition 6 (50 Respondents)

Table 3: Descriptive Vignette Design

Vignettes – Situation
You work for a humanitarian organization that specializes in providing medical aid, food, and water to disaster victims. There has been a recent disaster impacting a multitude of victims across multiple regions of a country. This disaster is similar to your previous deployment, meaning that you expect a wide variety of injuries and needs within the communities. The goal of your organization is to provide medical care and support to victims during a disaster. Your organization also provides food, water, and medical supplies to the communities, in hopes of assisting in the victims' recovery. Aid workers may also assist in tasks, such as cleaning and conducting safe burials, that will further help the communities and people. You and your team are being deployed to a humanitarian aid camp in an impacted region. You and your team are tasked with: • Assessing the amount of current supplies (food, water, and medical supplies) available within your organization • Assessing the amount of additional supplies available from your suppliers • Assessing the demand for these supplies in the impacted region • Allocating the available supplies to the communities and people within the region • Obtaining additional supplies from your suppliers when necessary Your previous deployment was particularly hard on you and your team. Please read the following excerpt from a journal entry of one of your experiences from that previous deployment.

Vignettes - Common Module

I woke up early this morning to help set up camp. I began the day sterilizing and cleansing our workstations. Then I helped people register with our organization to receive needed supplies for them and their families. Toward the middle of the day, I helped distribute supplies and medicine to the remaining individuals within our camp.

"Torrential rain from Hurricane Harvey has caused record flooding in Houston. Emergency shelter is stocked with supplies for disaster relief efforts." Alamy.com, Mond, Michel, Alamy Stock Photo, August, 29, 2017, https://www.alamy.com/stock-image-torrential-rain-from-hurricane-harvey-has-caused-record-flooding-in-163542933.html

Vignettes – Experimental Module

Trauma Exposure

In the afternoon, I had to handle dead bodies. The smell alone was enough to make you want to just run away, give any excuse to leave as soon as possible. And it wasn't men or women but children and small babies.

"SYRIA-CONFLICT." Gettyimages.co.nz, ABD DOUMANY/AFP via Getty Images, August 16, 2015, https://www.gettyimages.co.nz/detail/news-photo/picture-taken-on-august-16-2015-shows-dead-bodies-lined-up-news-photo/484220550?adppopup=true

No Trauma Exposure

No Information was presented.

Supervisor Approach Orientation (SPO) I knew the risk when I decided to join and dwelling on the event wasn't of any use to me, my coworkers, or the people we were trying to help. However, after the event I was finding it difficult to sleep, control my emotions, and focus at work. I tried to talk to my supervisor. They pulled me aside and told me that all of us have experienced or witnessed terrifying events… we see terrible things every day. They expressed empathy for me and my feelings. Then stated, "Let's take some time to talk. I'll help you get your head straight so you can focus on what we're here to do."
Supervisor Avoidance Orientation (SVO) I knew the risk when I decided to join and dwelling on the event wasn't of any use to me, my coworkers, or the people we were trying to help. However, after the event I was finding it difficult to sleep, control my emotions, and focus at work. I tried to talk to my supervisor. They pulled me aside and told me that all of us have experienced or witnessed terrifying events… we see terrible things every day! They expressed hostility towards me and my feelings. Then stated, "This isn't a big deal. You need to get your head straight so you can focus on what we're here to do."
No Supervisor Orientation No Information was presented.

Table 4: Measurement Items

Construct	Item	FA	CA	GLB	Source
Cooperative Commitment (CC)					
CC1	Willing to dedicate whatever people and resources are necessary to maintain cooperation.	0.80			Schmoltzi and Wallenburg 2012
CC2	Willing to make long-term investment in cooperation.	0.81	0.71	0.72	Schmoltzi and Wallenburg 2012
CC3	Willing to make sacrifices to help out cooperation partners.	0.78			Schmoltzi and Wallenburg 2012
Organization Commitment (OC)					
OC1	I'm likely to stay/reenlist with this organization for years to come.	0.83			Kundu and Lata 2017
OC2	I will not change this organization easily.	0.59	0.63	0.69	Kundu and Lata 2017
OC3	For me, this organization is the best of all possible organizations to works for.	0.84			Kundu and Lata 2017
Internal Integration (II)					
II2	Willing to have a common prioritization of how to allocate supplies.	0.76			Ataseven et al. 2018

II3	Willing to implement supply decisions based on plans agreed upon by the whole team.	0.76	0.67	0.68	Ataseven et al. 2018
II5	Willing to regularly exchange operational and tactical information with team members.	0.81			Ataseven et al. 2018
Life Events Checklist (LEC)					
LEC3	Physical assault or Assault with a weapon (attacked, hit, beaten up, shot, stabbed threatened with a weapon, etc.)	0.80			Blake et al. 1995, Gray et al. 2004
LEC4	Combat, exposure to a warzone (military or civilian) or Captivity (abducted, held hostage, prisoner of war)	0.78	0.68	0.68	Blake et al. 1995, Gray et al. 2004
LEC5	Life-threatening illness or injury or Severe human suffering	0.76			Blake et al. 1995, Gray et al. 2004

Table 5: Correlations

		Mean	SD	1	2	3	4	5
1	**II**	6.06	0.77	**1.00**				
2	**CC**	5.99	0.82	0.34	**1.00**			
3	**OC**	2.09	0.82	-0.26	-0.37	**1.00**		
4	**LEC**	2.66	0.97	-0.10	-0.09	0.08	**1.00**	
5	**WORKEXP**	3.39	0.98	0.13	-0.03	0.02	-0.02	**1.00**

Table 6: Participant Demographics

Respondent Characteristics	N of subjects	%
AGE		
25 - 34 years old	90	30.00%
35 - 44 years old	164	54.67%
45 - 54 years old	35	11.67%
Over 54	11	3.67%
GENDER		
Female	129	43.00%
Male	171	57.00%
ETHNICITY		
Caucasian	230	76.67%
Black/African American	36	12.00%
Latino or Hispanic	23	7.67%
Asian	6	2.00%
Native American	4	1.33%
Other/Unknown	1	0.33%
EDUCATION		
High School Diploma/GED	22	7.33%
Some College	40	13.33%
Bachelor's Degree	118	39.33%
Master's/Professional Degree or Higher	115	38.33%
Trade School	5	1.67%

EMPLOYEE STATUS		
Full-time employee	289	96.33%
Contracted/short-term employee	11	3.67%
INDUSTRY		
Emergency Management/Disaster Relief/Field Services	143	47.67%
Public Safety/Public Works (non-police/fire)	67	22.33%
Law Enforcement/Firefighting	55	18.33%
Emergency Healthcare	35	11.67%
JOB RESPONSIBILITY		
Entry Level Field/Services	51	17.00%
Senior Level Field/Services	70	23.33%
Manager/Supervisor Field/Services	97	32.33%
Executive Leadership (i.e., VP, director, and above)	73	24.33%
Volunteer or Contract Worker	9	3.00%
TOTAL	**300**	**100%**

Table 7: Hierarchical Multiple Regression Results

	CC			**OC**			**II**		
	B	t	p	B	t	p	B	t	p
Constant	6.42	28.37	0.00	1.68	7.46	0.00	6.02	28.61	0.00
Trauma	**-0.18**	**-1.91**	**0.06**	**0.26**	**2.80**	**0.01**	**-0.14**	**-1.55**	**0.12**
LEC	-0.03	-0.67	0.50	0.02	0.41	0.68	0.10	2.24	0.03
WORKEXP	-0.09	-1.76	0.08	0.08	1.68	0.09	-0.08	-1.85	0.06
	* significant at p < .10			** significant at p < .05			Confidence Calculated at 95%		

Tables 8: Process Mediation Results (Model 4)

	Trauma -> **CC** -> II (95% CI)			Trauma -> **CC** -> II (90% CI)			Trauma -> **OC** -> II (95% CI)		
	Direct Effect (CC)			Direct Effect (CC)			Direct Effect (OC)		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
Trauma	-0.181	-0.369	0.006	-0.181	-0.338	-0.025	0.264	0.079	0.450
	Direct Effect (II)			Direct Effect (II)			Direct Effect (II)		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
Trauma	-0.080	-0.245	0.085	-0.080	-0.218	0.058	-0.075	-0.246	0.096
CC	0.311	0.211	0.411	0.311	0.227	0.395	-0.233	-0.337	-0.129
	Indirect effect			7effect			Indirect effect		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
Trauma	-0.056	-0.123	0.002	-0.056	-0.110	-0.007	-0.062	-0.114	-0.019
	* significant at p < .10			** significant at p < .05					

Table 9: Process Moderation Results (Models 1 & 8)

	Trauma -> **CC** -> II (95% CI)			Trauma -> **OC** -> II (95% CI)		
	Direct Effect (CC)			Direct Effect (OC)		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
Trauma	-0.417	-0.738	-0.096	0.490	0.172	0.808
SPO	-0.262	-0.584	0.059	0.241	-0.077	0.559
SVO	-0.337	-0.660	-0.014	0.272	-0.048	0.592
Tr * SPO	0.358	-0.097	0.812	-0.445	-0.895	0.005
Tr * SVO	0.356	-0.103	0.814	-0.237	-0.692	0.218
	Conditional **Direct Effect**			Conditional **Direct Effect**		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
NSO	-0.417	-0.738	-0.096	0.490	0.172	0.808
SPO	-0.059	-0.380	0.262	0.045	-0.274	0.363
SVO	-0.061	-0.388	0.266	0.253	-0.071	0.576
	Conditional **Indirect Effect**			Conditional **Indirect Effect**		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
NSO	-0.129	-0.252	-0.032	-0.112	-0.203	-0.037
SPO	-0.018	-0.122	0.080	-0.010	-0.083	0.054
SVO	0.019	-0.123	0.104	-0.058	-0.149	0.021
	Moderated Mediation			Moderated Mediation		
	Coeff	**LLCI**	**ULCI**	**Coeff**	**LLCI**	**ULCI**
SPO	0.110	-0.023	0.266	0.102	0.006	0.219
SVO	0.110	-0.029	0.301	0.054	-0.060	0.174
	* significant at p < .10			** significant at p < .05		
	Confidence Intervals Calculated at 95%					

Table A-5: Hierarchical Regression with Quadratic Term

	Direct Effect (II)								
	B	t	p	B	t	p	B	t	p
Constant	5.920	29.398	0.000	3.928	10.591	0.000	6.184	5.271	0.000
CC				0.316	6.250	0.000	-0.519	-1.250	0.212
CC^2							0.076	2.026	0.044
LEC	-0.076	-1.672	0.096	-0.052	-1.216	0.225	-0.051	-1.188	0.236
WORKEXP	0.102	2.263	0.024	0.111	2.630	0.009	0.104	2.455	0.015
Constant	5.920	29.398	0.000	6.367	29.256	0.000	7.116	23.370	0.000
OC				-0.240	-4.609	0.000	-0.986	-4.443	0.000
OC^2							0.155	3.455	0.001
LEC	-0.076	-1.672	0.096	-0.060	-1.367	0.173	-0.047	-1.076	0.283
WORKEXP	0.102	2.263	0.024	0.106	2.433	0.016	0.104	2.429	0.016
	* significant at p < .10			** significant at p < .05			Confidence Calculated at 95%		

Appendix C: Essay 2 – The Influence of Religion

Figure 1: Theoretical Framework

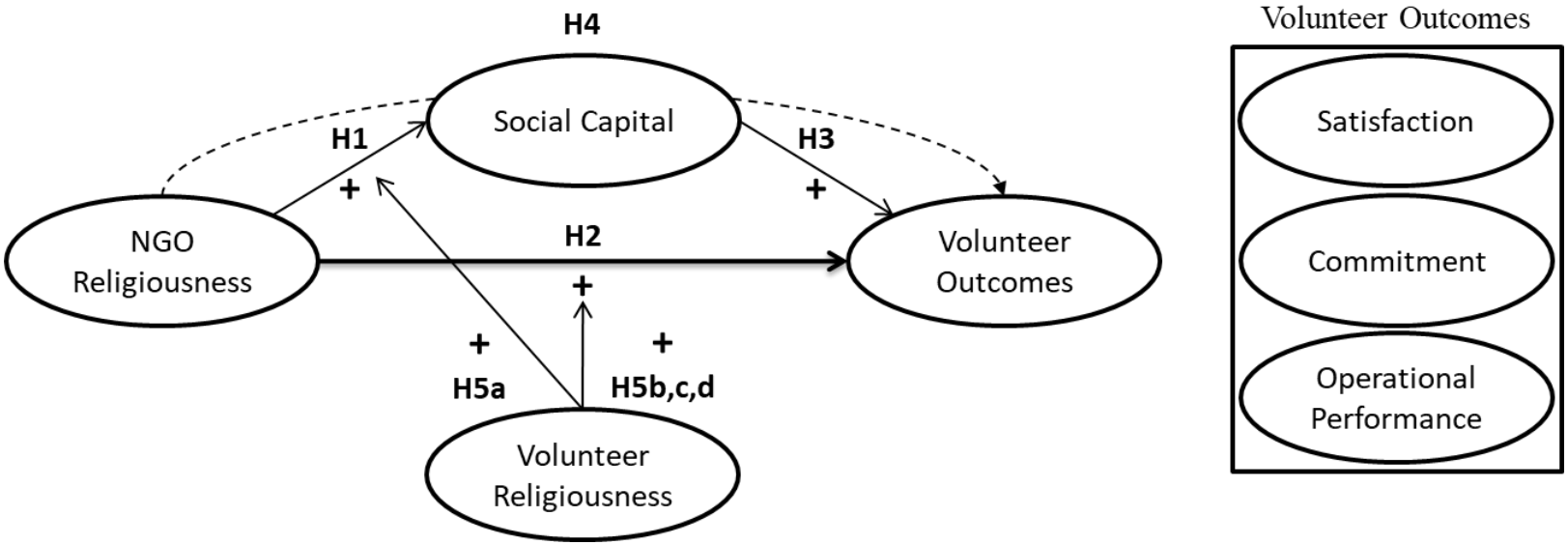


Figure 2: Lab Volunteer Task

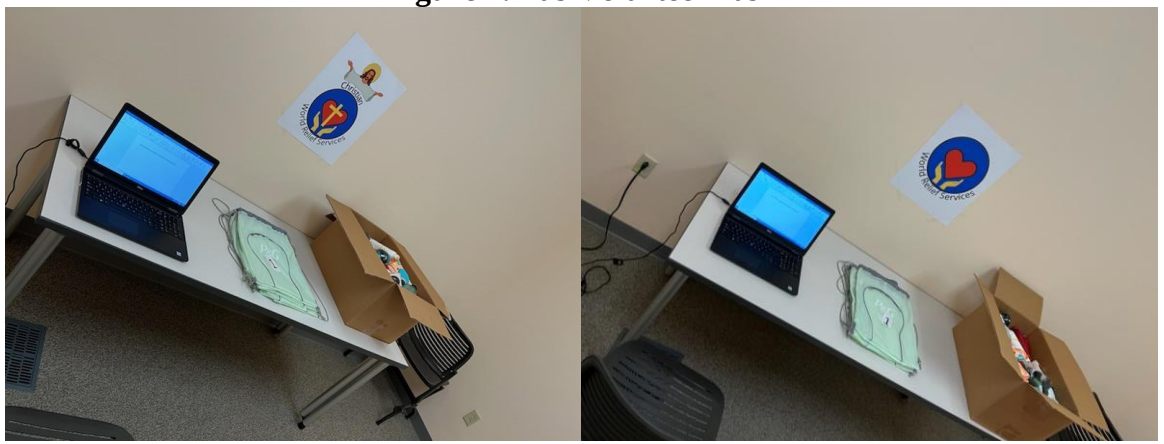


Figure 3: Experiemtnal Proceudure

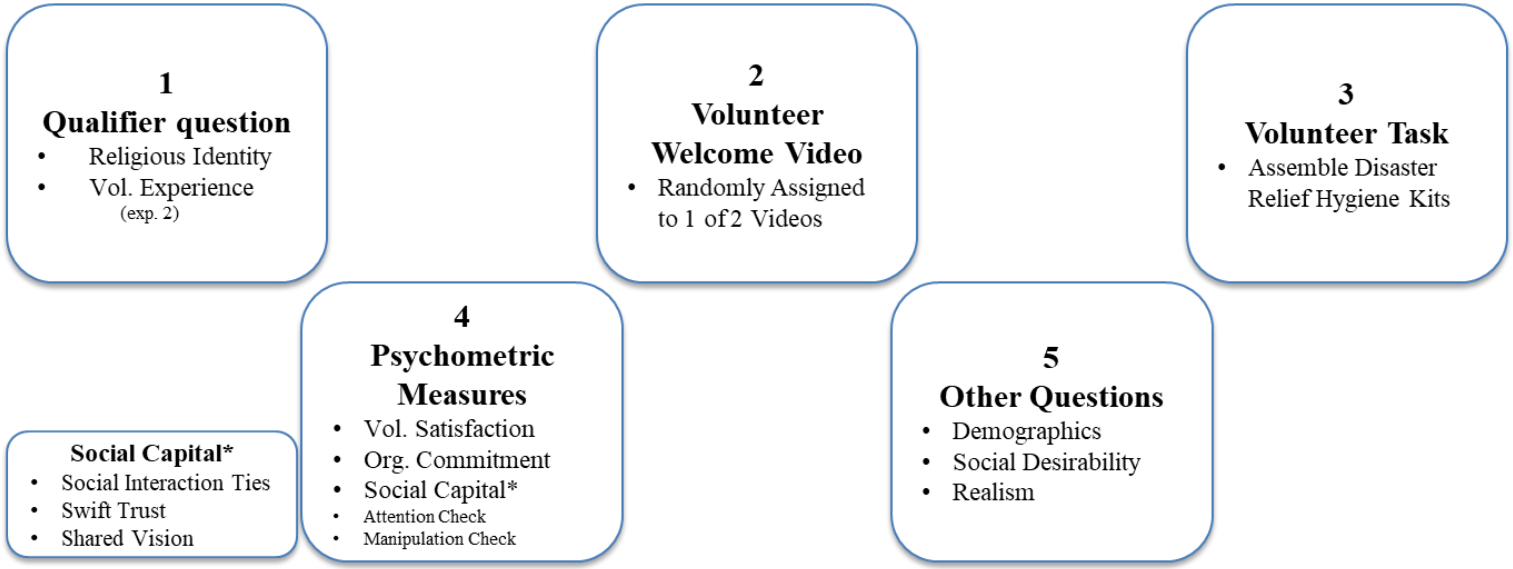


Figure 4: Online Volunteer Task

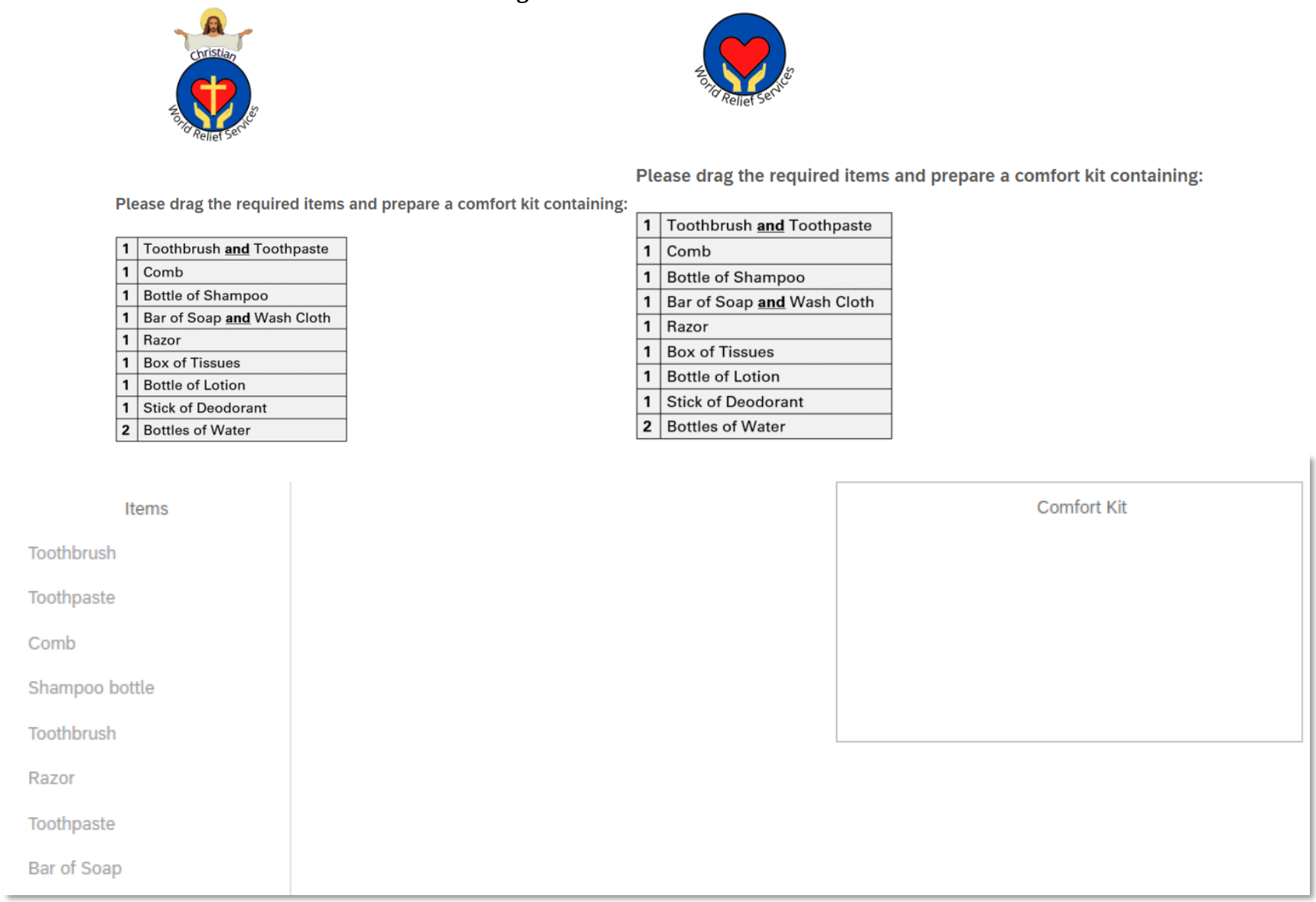


Figure 5: Process Model 1 – Social Capital

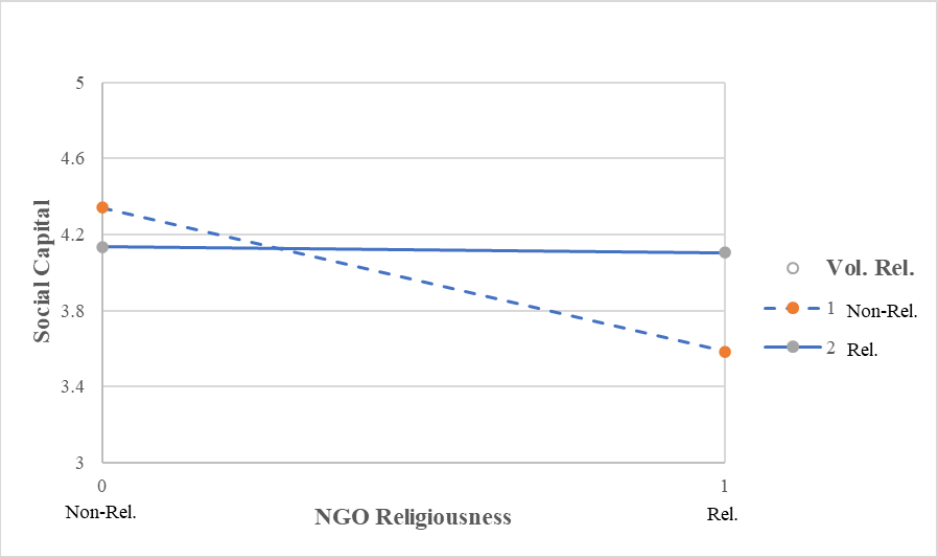


Figure 6: Process Model 1 – Volunteer Commitment

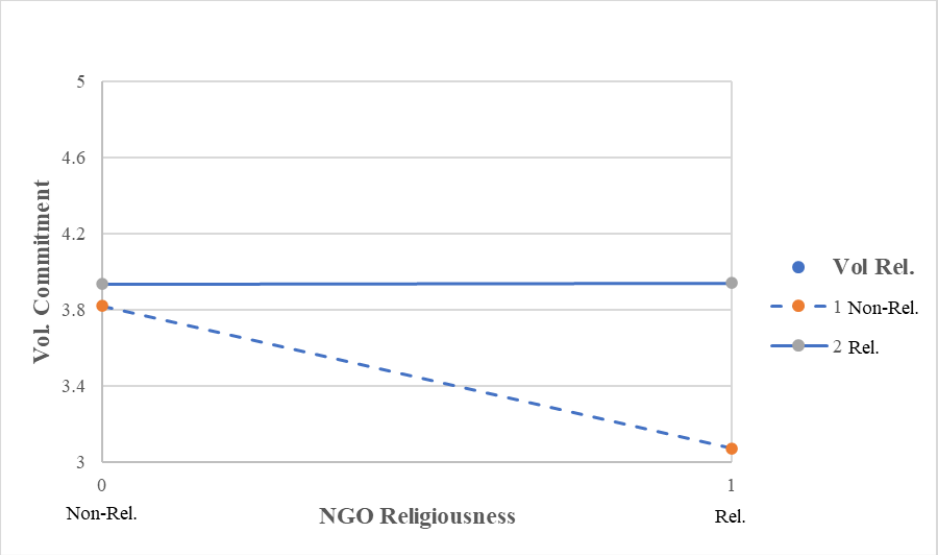


Figure 7: Process Model 1 – Assembly Time

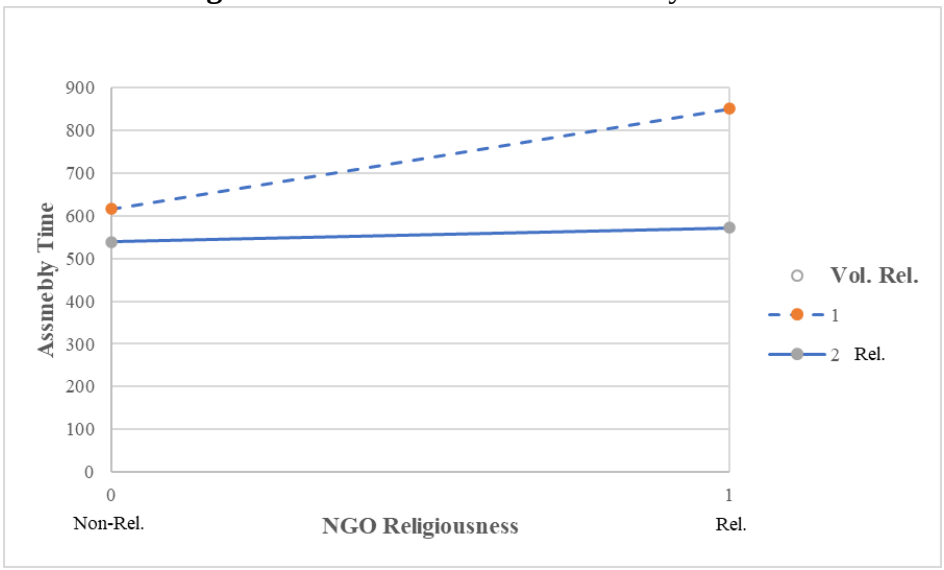


Figure 8: Adjusted Theoretical Model based on the Service Profit Chain (Heskett et al., 1994)

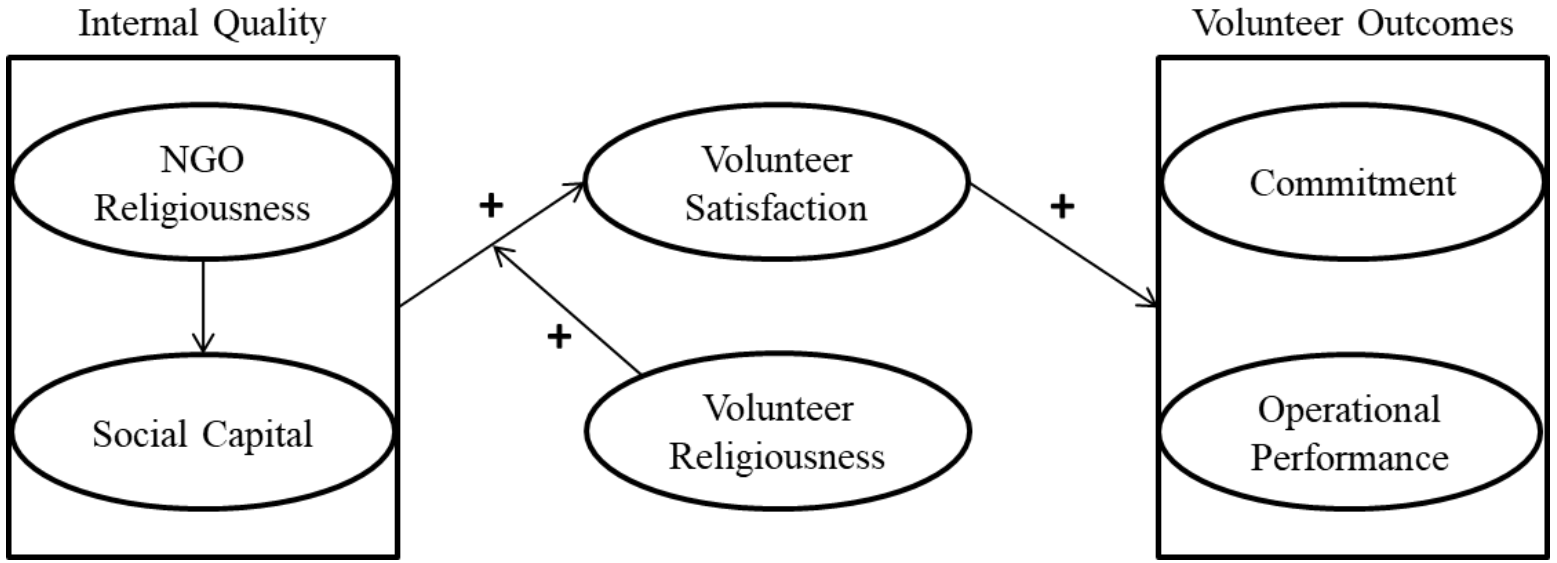


Table 1: Construct Definitions

Term	Definitions	References
Faith-based NGO	A non-state organization whose philosophies, membership, or programmatic approach are centered around a religious or faith core	Dicklitch and Rice, 2004; Heist and Cnaan, 2015
NGO Religiousness	NGOs' degree of adherence to an organized system of beliefs, rituals, and practices of a specific institution or tradition	Karakas, 2010; Stratta et al. 2013
Volunteer Religiousness	Volunteers' degree of adherence to an organized system of beliefs, rituals, and practices of a specific institution or tradition	Karakas, 2010; Stratta et al. 2013
Social Capital	The sum of the actual and potential resources embedded, available, and derived from a network of relationships	Nahapiet and Ghoshal, 1998
Volunteer Satisfaction	The degree to which a volunteer is happy with their volunteer experience	Bond and Bunce, 2003
Volunteer Commitment	Volunteers' emotional attachment to and perceived obligation to remain in the organization	Allen and Meyer 1990
Volunteer Performance	The set of behaviors that are relevant to the operational goals of the organization in which a volunteer works	Jusoh et al., 2021

Table 2: Measurement Properties

Construct	Item	EFA	CFA	α	Source(s)
	Social Interaction Ties (SIT)				
SIT1	Exert effort to maintain our relationship.	0.940	0.943	0.937	Dobrzykowski and Tarafdar, 2015
SIT2	Provide assistance to the organization.	0.910	0.857		Dobrzykowski and Tarafdar, 2015
SIT3	Abide by their commitments.	0.876	0.815		Dobrzykowski and Tarafdar, 2015
SIT4	Make an effort to work with the organization.	0.936	0.930		Dobrzykowski and Tarafdar, 2015
	Swift Trust (STR)				
STR1	This organization is trustworthy.	0.866	0.795	0.852	Dubey et al., 2019
STR2	I have no reason to doubt the organization's competence and preparation.	0.884	0.813		Dubey et al., 2019
STR3	While working together on specific tasks, I believe I can rely on them not to cause trouble by careless work.	0.884	0.823		Dubey et al., 2019
	Shared Vision (SV)				
SV1	I share the same ambitions and vision as the organization.	0.859	0.829	0.934	Leana and Pil, 2006
SV2	I enthusiastically pursue the same collective goals and mission as the organization.	0.871	0.834		Leana and Pil, 2006
SV3	There is a commonality of purpose between myself and the organization.	0.873	0.846		Leana and Pil, 2006
SV4	I am committed to the organization's goals.	0.885	0.856		Leana and Pil, 2006
SV5	I view myself and the organization as partners.	0.840	0.811		Leana and Pil, 2006
SV6	I am in total agreement with the organization's vision.	0.874	0.854		Leana and Pil, 2006

Volunteer Commitment (VC)					
VC1	I'm likely to volunteer/reenlist with this organization for years to come.	0.852	0.776	0.827	Kundu and Lata, 2017
VC2	I will not change (leave) this organization easily	0.854	0.747		Kundu and Lata, 2017
VC3	For me, this organization is the best of all possible organizations to volunteer for.	0.878	0.826		Kundu and Lata, 2017
Volunteer Satisfaction (VS)					
VS1	Overall, I like my volunteer activity a lot.	0.877	0.868	0.853	Güntert et al., 2016
VS2	All in all, I am very satisfied with how I performed during my volunteer activity.	0.868	0.752		Güntert et al., 2016
VS3	I am satisfied with my volunteer tasks.	0.899	0.815		Güntert et al., 2016

Table 3: Experiment 1 – Bivariate Correlations

	μ	σ	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 Social Capital	3.84	0.65	1						
2 Vol. Satisfaction	4.40	0.72	.192*	1					
3 Vol. Commitment	3.40	0.73	.702**	.346**	1				
4 Total Accuracy	3.53	1.59	0.040	.251**	0.039	1			
5 Item Accuracy	51.49	4.91	0.074	.256**	0.124	.809**	1		
6 Spirituality	2.75	0.94	0.130	-0.013	.219*	-0.066	-0.053	1	
7 Age	1.29	0.81	-0.067	-.217*	-0.058	-0.013	-0.043	-0.074	1

Table 4: Participant Demographics

Participant Characteristics	**Exp. 1:** N of resp.	%	**Exp. 2:** N of resp.	%
AGE				
18 - 24 years old	94	85.5%	16	8.1%
25 - 34 years old	5	4.5%	52	26.3%
35 - 44 years old	8	7.3%	55	27.3%
45 - 54 years old	2	1.8%	19	9.6%

55 - 64 years old	0	0.0%	19	9.6%
Over 64	1	0.9%	37	18.7%
GENDER				
Female	70	63.6%	98	49.5%
Male	38	34.5%	97	49.0%
Non-binary/third gender	2	1.8%	3	1.5%
ETHNICITY				
Caucasian	76	69.1%	129	65.2%
Black/African American	7	6.4%	29	14.6%
Latino or Hispanic	10	9.1%	12	6.1%
Asian or Pacific Islander	9	8.2%	21	10.6%
Native American	2	1.8%	1	0.5%
Prefer not to answer	6	5.5%	6	3.0%
EDUCATION				
High School Diploma/GED	11	10.0%	20	10.1%
Some College	72	65.5%	51	25.8%
Bachelor's Degree	19	17.3%	62	31.3%
Master's/Professional Degree or Higher	8	7.3%	58	29.3%
Trade School	0	0.0%	7	3.5%
WORK EXPERIENCE				
0 to 5 years	95	86.4%	37	18.7%
6 to 10 years	6	5.5%	46	23.2%
11 to 15 years	3	2.7%	36	18.2%
Over 15 years	6	5.5%	79	39.9%
TOTAL	**110**	**100%**	**198**	**100%**

Table 5: Video Script Design

Beginning Instructions:

Thank you for agreeing to take part in this important survey about the experiences of volunteer aid workers. For this study, you will be participating as a volunteer aid worker for a humanitarian non-governmental organization (NGO) deployed in an area recently stricken by a disaster. **Please watch the following video regarding the mission and goals of your organization.** Then you will be asked to engage in a volunteer task exercise.

	**Baseline – Non-faith-based:** We are an organization committed to the values and mission to serve those in need and promote charity and justice throughout the world. The goal of our organization is to provide aid and support to victims of war, poverty, natural disasters, disease, and famine with the purpose of alleviating human suffering.
	**Treatment – Faith-based NGO:** We are a **Christian-based** organization committed to the values and mission of the **Christian faith** to serve those in need and promote charity and justice throughout the world. The goal of our organization is to provide aid and support to victims of war, poverty, natural disasters, disease, and famine with the purpose of alleviating human suffering and **promoting God's love through the Gospel of our Lord Jesus Christ**.

Table 6: Experiment 1 – Hierarchical Regression

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy
NGO Relig.	**-0.42 (0.001) ****	**-0.29 (0.030) ***	**-0.40 (0.003) ****	**-0.69 (0.023) ***	**-2.30 (0.014) ***
Spirituality	0.09 (0.161)	-0.02 (0.768)	0.17 (0.018) *	-0.11 (0.490)	-0.29 (0.563)
Age	-0.05 (0.481)	-0.20 (0.018) *	-0.04 (0.601)	-0.05 (0.807)	-0.32 (0.577)

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β (p-value)

Table 7: Experiment 1 – Process Model 4, Mediation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy
Indirect Effect		**-0.06 (-0.17, 0.04)**	**-0.31 (-0.49, -0.14) ***	**-0.03 (-0.22, 0.29)**	**-0.01 (-0.57, 0.72)**
NGO Relig.	-0.42 (0.001) **	-0.23 (0.102)	-0.09 (0.398)	-0.72 (0.026) *	-2.29 (0.021) *
Social Capital		**0.15 (0.183)**	**0.75 (0.000) ****	**-0.06 (0.780)**	**0.02 (0.979)**
Spirituality	0.09 (0.16)	-0.03 (0.635)	0.10 (0.057) +	-0.11 (0.52)	-0.29 (0.566)
Age	-0.05 (0.48)	-0.19 (0.023) *	-0.01 (0.943)	-0.05 (0.80)	-0.32 (0.581)

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β (p-value or CI); 95% confidence level

Table 8: Experiment 2 – Bivariate Correlations

	μ	σ	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1 Social Capital	4.07	0.83	1								
2 Vol. Satisfaction	4.24	0.76	.621**	1							
3 Vol. Commitment	3.77	0.95	.748**	.528**	1						
4 Total Accuracy	3.97	4.02	-0.119	0.014	-.356**	1					
5 Item Accuracy	70.46	34.80	-.175*	-0.047	-.379**	.866**	1				
6 Spirituality	2.82	0.98	.372**	.285**	.349**	-.251**	-.307**	1			
7 Age	3.42	1.61	-.158*	-0.039	-.195**	.266**	.323**	-0.012	1		
8 Vol. Religiousness	1.66	0.48	.194**	.193**	.306**	-.317**	-.369**	.431**	0.132	1	
9 Assembly Time	614.10	419.28	-0.110	-0.018	-.241**	.602**	.676**	-0.132	.346**	-.160*	1

* Significant at p < 0.05; ** significant at p < 0.01 (2-tailed significance)

Table 9: Experiment 2 – Hierarchical Regression

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
NGO Relig.	**-0.28 (0.010) ****	**-0.01 (0.353)**	**-0.25 (0.039) ***	**0.45 (0.388)**	**5.20 (0.216)**	**102.30 (0.063) +**
Spirituality	0.28 (0.000) **	0.19 (0.002) **	0.24 (0.001) **	-0.46 (0.118)	-5.22 (0.029) *	-17.61 (0.57)
Age	-0.08 (0.016) *	-0.02 (0.502)	-0.13 (0.001) **	0.76 (0.000) **	7.94 (0.000) **	95.97 (0.000) **
Vol. Relig.	0.14 (0.279)	0.16 (0.205)	0.47 (0.001) **	-2.63 (0.000) **	-26.13 (0.000) **	-172.35 (0.008) **

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β (p-value)

Table 10: Experiment 2 – Process Model 4, Mediation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Indirect Effect		**-0.16 (-0.28, -0.04) ***	**-0.22 (-0.40, -0.05) ***	**-0.07 (-0.27, 0.13)**	**-0.29 (-1.78, 1.30)**	**-4.07 (-27.03, 15)**
NGO Relig.	-0.28 (.010) **	0.06 (0.489)	-0.03 (0.722)	0.51 (0.328)	5.49 (0.200)	106.37 (0.058) +
Social Capital		**0.57 (0.000) ****	**0.79 (0.000) ****	**0.24 (0.480)**	**1.05 (0.710)**	**14.53 (0.693)**
Spirituality	0.28 (0.000) **	0.03 (0.581)	0.01 (0.814)	-0.53 (0.089) +	-5.52 (0.029) *	-21.71 (0.508)
Age	-0.08 (0.016)	0.02 (0.379)	-0.07 (0.021)	0.78 (0.000) **	8.02 (0.000) **	97.16 (0.000) **
Vol. Relig.	0.14 (0.280)	0.08 (0.434)	0.36 (0.001) **	-2.67 (0.000) **	-26.27 (0.000) **	-174.35 (0.008) **

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β *(p-value or CI); 95% confidence level*

Table 11: Experiment 2 – Process Model 1, Moderation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Interaction	**0.73 (0.001) ****	**0.14 (0.539)**	**0.75 (0.003) ****	**-1.39 (0.199)**	**-5.45 (0.539)**	**-201.26 (0.081) +**
NGO Relig.	-1.48 (.001) **	-0.32 (0.398)	-1.50 (0.000) **	2.76 (0.141)	14.22 (0.352)	435.83 (0.029) *
Spirituality	0.28 (0.000) **	0.19 (0.002) **	0.23 (0.001) **	-0.45 (0.128)	-5.17 (0.031) *	-15.79 (0.610)
Age	-0.09 (0.009) **	-0.02 (0.483)	-0.14 (0.000) **	0.77 (0.000) **	7.98 (0.000) **	97.52 (0.000) **
Vol. Relig.	-0.21 (0.202)	0.09 (0.569)	0.12 (0.530)	-1.97 (0.014) *	-23.54 (0.000) **	-76.86 (0.362)
			Conditional Direct Effects			
Low Vol. Rel.	-0.76 (0.000) **		-0.75 (0.000) **			234.56 (0.012) *
High Vol. Rel.	-0.02 (0.811)		0.01 (0.971)			33.31 (0.620)

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β *(p-value)*

Table 12: Experiment 2 – Process Model 8, Moderation Mediation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Interaction	**0.73 (0.001) ****	**-0.29 (0.119)**	**0.19 (0.318)**	**-1.66 (0.137)**	**-6.56 (0.472)**	**-223.76 (0.059) +**
NGO Relig.	-1.48 (.001) **	0.55 (0.092) +	-0.35 (0.290)	3.30 (0.090) +	16.49 (0.300)	**481. 79 (.020) ***
Social Capital		0.59 (0.000) **	0.78 (0.000) **	0.37 (0.302)	1.53 (0.598)	30.99 (0.410)
Spirituality	0.28 (0.000) **	0.03 (0.626)	0.02 (0.782)	-0.55 (0.077) +	-5.59 (0.027) *	-24.32 (0.456)
Age	-0.09 (0.009) **	0.03 (0.306)	-0.08 (0.017) *	0.80 (0.000) **	8.11 (0.000) **	100.24 (0.000) **
Vol. Relig.	-0.21 (0.202)	0.21 (0.109)	0.28 (0.043) *	-1.90 (0.019) *	-23.22 (0.001) **	-70.44 (0.406)
			Conditional Indirect Effects			
Low Vol. Rel.		-0.44 (-0.71, -0.20) *	-0.59 (-0.95, -0.26) *	-0.28 (-0.86, 0.22)	-1.16 (-5.23, 2.80)	-23.46 (-87.15, 30.48)
High Vol. Rel.		-0.02 (-0.15, 0.12)	-0.02 (-0.20, 0.15)	-0.01 (-0.13, 0.11)	-0.05 (-0.81, 0.68)	-0.96 (-13.24, 9.63)
			Moderated Mediation (difference between conditional indirect effects)			
Mod. Mediation		0.43 (0.15, 0.73) *	0.56 (0.20, 0.96) *	0.27 (-0.21, 0.88)	1.11 (-2.73, 5.16)	22.50 (-29.11, 89.04)

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β *(p-value or CI); 95% confidence level*

Table 13: Religiosity Robustness Test – Hierarchical Regression

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
NGO Relig.	**-0.28 (0.009) ****	**-0.10 (0.35)**	**-0.25 (0.038) ***	**0.39 (0.449)**	**4.74 (0.250)**	**100.37 (0.063) +**
Spirituality	0.25 (0.000) **	0.15 (0.017) *	0.16 (0.023) *	-0.32 (0.296)	-2.90 (0.241)	9.36 (0.772)
Age	-0.08 (0.014) *	-0.02 (0.484)	-0.13 (0.001) *	0.72 (0.000) **	7.65 (0.000) **	95.25 (0.000) **
Vol. Religiosity	0.08 (0.054) +	-.09 (0.033) *	0.21 (0.000) *	-0.83 (0.000) **	-9.47 (0.000) **	-76.54 (0.000) **

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β *(p-value/CI)*

Table 14: Religiosity Robustness Test – Hierarchical Regression, Social Capital Dimensions

	Soc. Int. Ties	Swift Trust	Shared Vision
NGO Relig.	**-0.37 (0.004) ****	**-0.15 (0.180)**	**-0.32 (0.004) ***
Spirituality	0.24 (0.002) **	0.25 (0.000) **	0.24 (0.000) **
Age	-0.13 (0.001) **	-0.04 (0.250)	-0.08 (0.024) *
Vol. Religiosity	0.10 (0.041) *	0.04 (0.336)	0.10 (0.023) *

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β (p-value/CI); 95% confidence level

Table 15: Religiosity Robustness Test – Process Model 1, Moderation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Interaction	**0.25 (0.000) ****	**0.020 (0.772)**	**0.25 (0.001) ****	**-0.23 (0.501)**	**-0.37 (0.890)**	**-39.10 (0.262)**
NGO Relig.	-0.74 (0.000 **	-0.13 (0.415)	-0.71 (0.000) **	0.81 (0.318)	5.43 (0.401)	173.27 (0.041) *
Spirituality	0.24 (0.000) **	0.150 (0.017) *	0.16 (0.022) *	-0.32 (0.301)	-2.89 (0.243)	9.84 (0.76)
Age	-0.08 (0.10) **	-0.02 (0.483)	-0.13 (0.001) **	0.72 (0.000) **	7.66 (0.000) **	95.46 (0.000) **
Vol. Religiosity	-0.04 (0.437)	0.08 (0.142)	0.09 (0.127)	-0.73 (0.001) **	-9.29 (0.000) **	-57.65 (0.031) *
		Conditional Direct Effects				
Low Vol. Relig.	-0.74 (0.000) **		-0.71 (0.000) **			
Med Vol. Relig.	-0.25 (0.018) *		-0.21 (0.067) +			
High Vol. Relig.	0.24 (0.168)		028 (0.152)			

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01
Note: β (p-value/CI); 95% confidence level; conditional direct effects are only calculated when the interaction is significant

Table 16: Religiosity Robustness Test – Process Model 8, Moderated Mediation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Interaction	0.25 (0.000) **	-0.13 (0.028) *	0.06 (0.268)	-0.33 (0.342)	-0.98 (0.723)	-48.62 (0.178)
NGO Relig.	-0.74 (0.000) **	0.30 (0.032) *	-0.16 (0.273)	1.12 (0.189)	7.26 (0.286)	201.87 (0.024) *
Social Capital		0.59 (0.000) **	0.75 (0.000) **	0.42 (0.242)	2.49 (0.389)	38.83 (0.302)
Spirituality	0.24 (0.000) **	0.01 (0.906)	-0.02 (0.670)	-0.42 (0.189)	-3.50 (0.175)	0.41 (0.990)
Age	-0.08 (-0.010) **	0.03 (0.318)	-0.07 (0.017) *	0.76 (0.000) **	7.87 (0.000) **	98.74 (0.000) **
Vol. Religiosity	-0.04 (0.437)	0.10 (0.019) *	0.12 (0.006) **	-0.71 (0.006) **	-9.19 (0.000) **	-56.11 (0.036) *
		Conditional Indirect Effects				
Low Relig.		-0.44 (-0.68, -0.22) *	-0.55 (-0.86, -0.26) *	-0.31 (-0.85, 0.20)	-1.83 (-5.56, 1.83)	-29.60 (-88.69, 24.27)
Med Relig.		-0.15 (-0.27, -0.03) *	-0.19 (-0.25, -0.04) *	-0.10 (-0.30, 0.07)	-0.61 (-2.07, 0.63)	-9.57 (-33.14, 7.70)
High Relig.		0.14 (-0.01, 0.31)	0.18 (-0.02, 0.39)	0.10 (-0.07, 0.37)	0.61 (-0.61, 2.30)	9.46 (-9.63, 35.25)
		Moderated Mediation (difference between conditional indirect effects)				
Mod. Mediation		0.15 (0.07, 0.23) *	0.18 (0.08, 0.29) *	0.10 (-0.07, 0.29)	0.61 (-0.59, 1.87)	9.51 (-8.31, 28.84)

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$

Note: β *(p-value/CI); 95% confidence level*

Table 17: Adjusted Theoretical Model – Process Model 4, Mediation: Vol. Satisfaction

	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Indirect Effect		**-0.05 (-0.18, 0.05)**	**-0.07 (-0.24, 0.09)**	**-0.40 (-1.94, 0.46)**	**-3.19 (-24.73, 4.94)**
NGO Relig.	-0.10 (0.353)	-0.20 (0.066) +	0.51 (0.317)	5.60 (0.18)	105.49 (0.056) +
Vol. Satisfaction		0.55 (0.000) **	0.70 (0.047) *	4.14 (0.150)	32.74 (0.385)
Spirituality	0.19 (0.002) **	0.13 (0.035) *	-0.59 (0.049) *	-6.00 (0.015) *	-23.76 (0.456)
Age	-0.02 (0.502)	-012 (0.001) **	0.78 (0.000) **	8.028 (0.000) **	96.70 (0.000) **
Vol. Relig.	0.16 (0.205)	0.39 (0.003) **	-2.74 (0.000) **	-26.78 (0.000) **	-177.50 (0.007) **

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01

Note: β (p-value/CI); 95% confidence level

Table 18: Adjusted Theoretical Model – Process Model 6, Serial Mediation

	Social Capital	Vol. Satisfaction	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
Indirect Effect			**-0.02 (-0.06, 0.01)**	**-0.13 (-0.29, 0.001) +**	**-0.84 (-2.52, 0.17)**	**-5.73 (-24.24, 6.39)**
NGO Relig.	-0.28 (.010) **	0.06 (0.489)	-0.04 (0.662)	0.46 (0.375)	5.17 (0.23)	104.17 (0.064) +
Social Capital		0.57 (0.000) **	0.72 (0.000) **	-0.23 (0.590)	-1.954 (0.57)	-5.95 (0.895)
Vol. Satisfaction			0.12 (0.110)	0.84 (0.054) +	5.29 (0.135)	36.26 (0.433)
Spirituality	0.28 (0.000) **	0.03 (0.581)	0.01 (0.864)	-0.55 (0.074) +	-5.67 (0.025) *	-22.74 (0.489)
Age	-0.08 (0.016)	0.02 (0.379)	-0.07 (0.016) *	0.76 (0.000) **	7.89 (0.000) **	96.29 (0.000) **
Vol. Relig.	0.14 (0.280)	0.08 (0.434)	0.36 (0.001) **	-2.73 (0.000) **	-26.69 (0.000) **	-177.23 (0.007) **

+ Significant at p < 0.1; * significant at p < 0.05; ** significant at p < 0.01

Note: β (p-value/CI); 95% confidence level

Table 19: Adjusted Theoretical Model– Process Model 85, Moderated Serial Mediation

	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
	Conditional Indirect Effects			
Low Vol. Rel.	-0.06 (-0.20, 0.02)	-0.34 (-0.78, 0.02) +	-2.25 (-6.88, 0.66)	-11.90 (-58.48, 24.83)
High Vol. Rel	0.002 (-0.03, 0.03)	-0.01 (-0.13, 0.11)	-0.09 (-1.15, -0.78)	-0.49 (-10.08, 6.35)
	Moderated Mediation (difference between conditional indirect effects)			
Mod. Mediation (95% CI)	0.05 (-0.01, 0.20)	0.33 (-0.01, 0.81) +	2.16 (-0.65, 7.11)	11.41 (-25.55, 57.94)
Mod. Mediation (90% CI)	0.05 (-0.004, 0.17)	0.33 (0.03, 0.70) +	2.16 (-0.25, 5.90)	11.41 (-18.70, 48.77)

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$

Note: β *(p-value/CI); 95% confidence level*

Table 20: Adjusted Theoretical Model – Process Model 85, Moderated Serial Mediation

	Vol. Commitment	Total Accuracy	Item Accuracy	Assembly Time
	Conditional Indirect Effects			
Low Relig.	-0.05 (-0.16, 0.02)	-0.37 (-0.81, -0.01) *	-2.67 (-7.28, 0.07) +	-15.79 (-61.19, 19.64)
Med Relig.	-0.02 (-0.06, 0.01)	-0.13 (-0.30. 0.002) +	-0.89 (-2.71, 0.05) +	-5.28 (-23.04, 6.15)
High Relig.	0.02 (-0.01, 0.08)	0.12 (-0.02, 0.37)	0.88 (-0.22, 3.05)	5.22 (-7.65, 23.98)
	Moderated Mediation (difference between conditional indirect effects)			
Mod. Mediation (95% CI)	0.02 (-0.01, 0.06)	0.12 (0.004, 0.28) *	0.89 (-0.02, 2.46) +	5.25 (-6.65, 20.42)
Mod. Mediation (90% CI)	0.02 (-0.003, 0.05)	0.12 (0.03, 0.25) *	0.89 (0.09, 2.07) +	5.25 (-4.52, 17.86)

+ Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$

Note: β *(p-value/CI); 95% confidence level*

Appendix D: Essay 3 – The Influence of NGO Resource Capabilities

Essay 3 Figure 1: Theoretical Framework

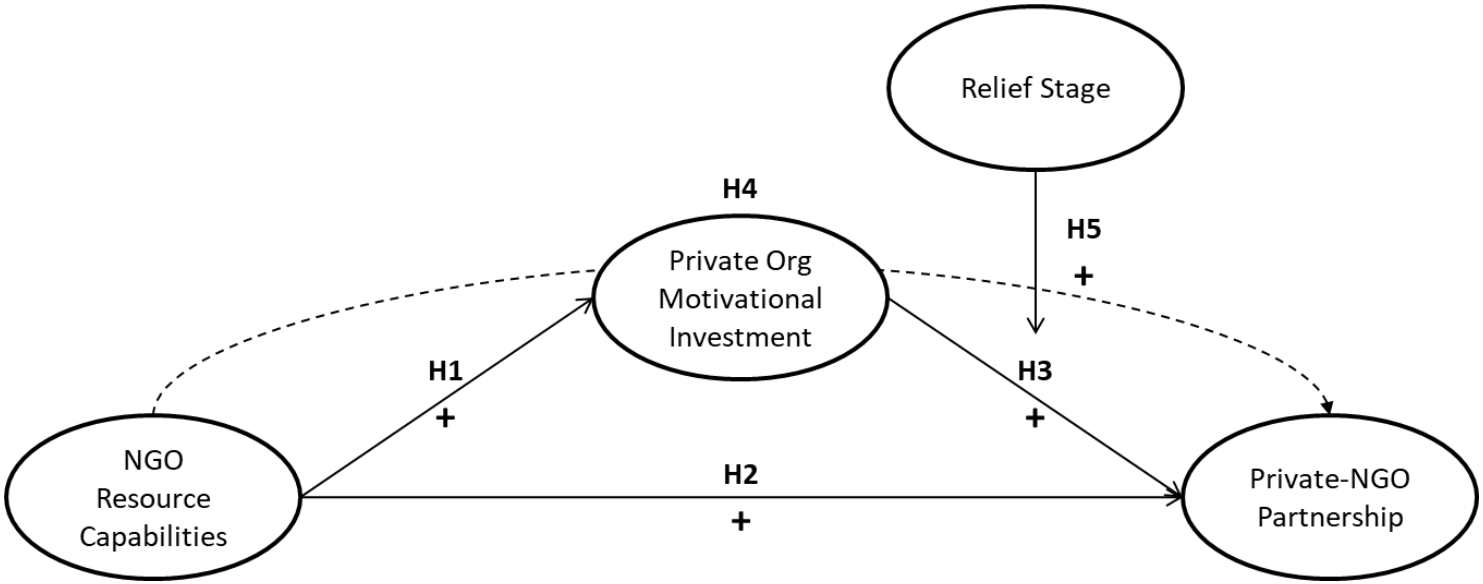


Table 1: Construct Definitions

Term	Definitions	References
Private-NGO Partnerships	A set of inter-organizational activities that involve collaboration and are designed to support both partners	Moshtari and Vanpoucke, 2021; Nurmala et a., 2017
Motivational Investment	The extent to which the firm values the resources or outcomes mediated by a potential partner	Geyskens et al., 1996; Pfeffer and Salancik, 1978
NGO Resource Capabilities	All intangible assets, including its relationship networks, firm attributes, and relief market knowledge and expertise, controlled by an NGO that enable it to conceive of and implement strategies that improve its ability to efficiently adapt and effectively respond to the disaster relief environment	Barney, 1991; Baharmand et al., 2019
Resource Importance	The extent to which the organization requires the resource for its continued operation and survival	Pfeffer and Salancik, 1978
Social Capital	The sum of the actual and potential resources embedded, available, and derived from a network of relationships	Nahapiet and Ghoshal, 1998
Likelihood to Partner	The probability that the respondent would recommend a partnership alliance with the organization described	Hitt et al., 2000
Partner Attractiveness	The degree to which an organization views a partner as desirable, favorable, appealing, and valuable	Shah and Swaminathan, 2008

Table 2: Descriptive Vignette Design

<table>
<tr><td colspan="2">Vignettes – Situation and Common Module</td></tr>
<tr><td colspan="2">You are a Supply Chain Manager who works for Retail Co., a retail company that specializes in the sale of goods such as jewelry, housewares, small appliances, electronics, groceries, and pharmaceutical products to consumers. You manage the Emergency Operations Center for Retail Co. Your responsibilities include but are not limited to:

• Developing and managing emergency and disaster preparedness, response, recovery, and mitigation activities.
• Managing and coordinating all emergency and crisis management partnerships.
• Maintaining the readiness and continuation of supply chain operations, logistics functions, and personnel.
• Maintaining the organization’s brand and reputation within the community.

There is an increasing risk of disastrous events that can severely disrupt business operations and negatively impact the surrounding communities. You are tasked with assessing an organization as a potential partner to aid your supply chain operations and personnel.</td></tr>
<tr><td colspan="2">Please read the following email sent from 'You' to your colleagues, describing the current situation and state of your organization, Retail Co.</td></tr>
<tr><td colspan="2">Vignettes – Relief Stage Experimental Cue</td></tr>
<tr><td><u>Preparedness Stage</u>

Colleagues,

We operate in a region of the country that is prone to natural disasters, potentially damaging the region’s infrastructure, severely disrupting our business operations and logistic functions, and negatively impacting the surrounding communities. The Emergency Operations Center has received calls and inquiries from corporate and local managers requesting recommendations concerning how to plan and prepare for potential future disastrous events.

In response to their inquiries, we have decided to consider partnering with an organization to help aid the Emergency Operations Center in addressing their concerns. They will</td><td><u>Response Stage</u>

Colleagues,

We operate in a region of the country that was recently struck by a natural disaster, damaging the region’s infrastructure, severely disrupting our business operations and logistic functions, and negatively impacting the surrounding communities. The Emergency Operations Center is receiving a surge in calls and inquiries from corporate and local managers requesting recommendations concerning how to respond to and recover from the current disastrous event.

In response to their inquiries, we have decided to consider partnering with an organization to help aid the Emergency Operations Center in addressing their concerns. They will</td></tr>
</table>

assist us in planning and preparing for potential future disastrous events and the potential need to provide aid to the surrounding communities impacted by the disasters.	assist us in responding and recovering from the current disastrous event and help us provide aid to the surrounding communities impacted by the disaster.
Please read the following excerpts regarding the potential partner organization.	
Vignettes – NGO Resource Capabilities Experimental Cue	
Non-NGO, commercial LSP We are an organization committed to the values and mission to produce superior financial returns for our shareholders throughout the world. We exist to provide supply chain services to our customers that is essential to business operations. We do this by merging the expertise and resources of the logistics industry with the expertise and capabilities of our business partners. By leveraging our network of partners, we connect people and markets to enable global trade and the success of our customers, employees, and shareholders.	
NGO, humanitarian LSP We are a humanitarian organization committed to the values and mission to serve those in need and save lives through logistics throughout the world. We exist to provide supply chain assistance to organizations that is essential to business and disaster management operations. We do this by merging the expertise and resources of the logistics industry with the expertise and capabilities of our disaster management partners. By leveraging our extensive network of partners, we connect people, communities, and organizations to enable effective disaster planning, preparedness, response, and recovery efforts.	

Table 3: Measurement Properties

Construct	Item	CFA	α	Source(s)
	Partner Attractiveness (PA)			
PA1	This organization is an appealing partner for Retail Co.	0.91	0.93	Shah and Swaminathan, 2008
PA 2	This organization is an attractive partner for Retail Co.	0.91		Shah and Swaminathan, 2008
PA 3	This organization will be a valuable partner for Retail Co.	0.88		Shah and Swaminathan, 2008
	Social Interaction Ties (SIT)			
SIT1	Exert effort to maintain our relationship.	0.91	0.93	Dobrzykowski and Tarafdar, 2015
SIT2	Provide assistance to the organization.	0.86		Dobrzykowski and Tarafdar, 2015
SIT3	Abide by their commitments.	0.84		Dobrzykowski and Tarafdar, 2015
SIT4	Make an effort to work with the organization.	0.90		Dobrzykowski and Tarafdar, 2015
	Swift Trust (STR)			
STR1	This organization is trustworthy.	0.82	0.88	Dubey et al., 2019
STR2	I have no reason to doubt the organization's competence and preparation.	0.86		Dubey et al., 2019
STR3	While working together on specific tasks, I believe I can rely on them not to cause trouble by careless work.	0.85		Dubey et al., 2019
	Shared Vision (SV)			
SV1	I share the same ambitions and vision as the organization.	0.91	0.95	Leana and Pil, 2006

SV2	I enthusiastically pursue the same collective goals and mission as the organization.	0.85		Leana and Pil, 2006
SV3	There is a commonality of purpose between myself and the organization.	0.86		Leana and Pil, 2006
SV4	I am committed to the organization's goals.	0.87		Leana and Pil, 2006
SV5	I view myself and the organization as partners.	0.85		Leana and Pil, 2006
SV6	I am in total agreement with the organization's vision.	0.88		Leana and Pil, 2006
	Supply Chain Disruption Orientation (SCDO)			
SCDO1	Disastrous events show us where we can improve.	0.79	0.82	Ambulkar et al., 2015
SCDO2	We think a lot about how a disastrous event could have been mitigated.	0.76		Ambulkar et al., 2015
SCDO3	After a disastrous event has occurred, it is analyzed thoroughly.	0.79		Ambulkar et al., 2015
	Firm Resiliency (FR)			
FR1	We are able to cope with changes brought on by disastrous events.	0.90	0.86	Ambulkar et al., 2015
FR2	We are able to adapt to disastrous events easily.	0.84		Ambulkar et al., 2015
FR3	We are able to provide a quick response to disastrous events.	0.88		Ambulkar et al., 2015
	Perceived Customer Relationship Investment (RI)			
RI1	My firm makes efforts to increase regular customers' loyalty.	0.83	0.90	De Wulf et al., 2001
RI2	My firm makes various efforts to improve its tie with regular customers.	0.93		De Wulf et al., 2001
RI3	My firm really cares about keeping regular customers.	0.85		De Wulf et al., 2001

Table 4: Participant Demographics

Participant Characteristics	**Exp. 1:** N of resp.	%
AGE		
18 - 24 years old	8	4.0%
25 - 34 years old	48	23.8%
35 - 44 years old	68	33.7%
45 - 54 years old	39	19.3%
55 - 64 years old	31	15.3%
Over 64	8	4.0%
GENDER		
Male	137	67.8%
Female	61	30.2%
Non-binary/third gender	4	2.0%
ETHNICITY		
Caucasian	164	81.2%
Black/African American	15	7.4%
Latino or Hispanic	11	5.4%
Asian or Pacific Islander	7	3.5%
Native American	3	1.5%
Prefer not to answer	2	1.0%
EDUCATION		
High School Diploma/GED	26	12.9%
Some College	50	24.8%
Bachelor's Degree	85	42.1%
Master's/Professional Degree or Higher	37	18.3%
Trade School	4	2.0%
WORK EXPERIENCE		
0 to 5 years	14	6.9%
6 to 10 years	26	12.9%
11 to 15 years	30	14.9%
Over 15 years	132	65.3%
TOTAL	**202**	**100%**

Table 5: Bivariate Correlations

	μ	σ	1	2	3	4	5	6	7	8	9
1 Resource Importance	4.01	0.82	1								
2 Social Capital	4.11	0.78	.671**	1							
3 Likelihood to Partner	3.99	0.98	.622**	.763**	1						
4 Partner Attractiveness	4.13	0.88	.638**	.831**	.766**	1					
5 Firm Resiliency	3.99	0.83	.161*	.233**	0.134	.229**	1				
6 SC Disruption Orientation	4.07	0.82	.268**	.389**	.300**	.380**	.561**	1			
7 Relationship Investment	4.35	0.73	.369**	.425**	.311**	.380**	.351**	.413**	1		
8 Education	3.71	0.99	0.016	-0.079	-0.061	-0.073	0.055	0.047	0.062	1	
9 Work Experience	5.99	1.73	.152*	0.096	0.070	0.118	0.056	0.065	0.122	0.030	1

Table 6: Common Method Bias Tests

Model	**χ^2**	**df**	**χ^2/df**	**CFI**	**RMSEA**
CFA	742.35	481	1.54	0.95	0.052
Baseline (uncorrelated marker)	791.41	498	1.59	0.94	0.054
Method C (constrained)	788.30	497	1.59	0.94	0.054
Method U (unconstrained)	732.84	473	1.55	0.95	0.052
χ^2 model comparison	**Δ χ^2**	**Δdf**		**χ^2 Critical value**	
1. Baseline vs. Method C	3.12	1		3.84	
2. Method C vs. Method U	55.45	24		36.42	
3. Method U vs. CFA	9.51	8		15.51	

Table 7: Hierarchical Regression

	Resource Importance	Social Capital	Likelihood to Partner	Partner Attractiveness
NGO	**0.18 (0.098) †**	**0.22 (0.019) ***	**0.27 (0.036) ***	**0.29 (0.009) ****
FR	-0.02 (0.844)	-0.01 (0.884)	-0.09 (0.369)	-0.01 (0.880)
SCDO	0.13 (0.108)	0.24 (0.001) **	0.27 (0.008) **	0.28 (0.001) **
RI	0.31 (0.000) **	0.29 (0.000) **	0.28 (0.006) **	0.30 (0.001) **
EDU	-0.03 (0.597)	-0.11 (0.027) *	-0.09 (0.186)	-0.10 (0.092) †
IND	-0.04 (0.007) **	-0.03 (0.061) †	-0.03 (0.144)	-0.01 (0.517)

† Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β (p-value)

NGO = NGO Resource capabilities; FR = Firm Resiliency; SCDO = Supply Chain Disruption Orientation; RI = Perceived Customer Relation Investment; EDU = Education; IND = Industry

Table 8: Process Model 4 – Resource Importance Mediation

	Resource Importance	Likelihood to Partner	Partner Attractiveness
Indirect Effect		**0.12 (-0.01, 0.28) †**	**0.10 (-0.01, 0.24) †**
NGO	**18 (0.098) †**	**0.16 (0.157)**	**0.19 (0.044) ***
IMPORT		**0.67 (0.000) ****	**0.59 (0.000) ****
FR	-0.02 (0.844)	-0.08 (0.35)	-0.00 (0.961)
SCDO	0.13 (0.11)	0.18 (0.033) *	0.20 (0.006) **
RI	0.31 (0.003) **	0.08 (0.378)	0.12 (0.115)
EDU	-0.03 (0.60)	-0.07 (0.219)	-0.08 (0.095) †
IND	-0.05 (0.008) **	0.00 (0.100)	0.01 (0.317)

† Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β (p-value or CI); 95% confidence level

IMPORT = Resource Importance; NGO = NGO Resource capabilities; FR = Firm Resiliency; SCDO = Supply Chain Disruption Orientation; RI = Perceived Customer Relation Investment; EDU = Education; IND = Industry

Table 9: Process Model 4 – Social Capital Mediation

	Social Capital	Likelihood to Partner	Partner Attractiveness
Indirect Effect		**0.22 (0.05, 0. 41) ***	**0.21 (0.04, 0.40) ***
NGO	**0.22 (0.019) ***	**0.06 (0.546)**	**0.09 (0.219)**
SC		**0.98 (0.000) ******	**0.93 (0.000) ******
FR	-0.01 (0.884)	-0.08 (0.262)	-0.00 (0.954)
SCDO	0.24 (0.001) **	0.04 (0.634)	0.06 (0.314)
RI	0.29 (0.000) **	-0.00 (0.960)	0.03 (0.631)
EDU	-0.11 (0.027) *	0.02 (0.727)	0.00 (0.940)
IND	-0.03 (0.06) †	-0.00 (0.852)	0.01 (0.194)

† Significant at $p < 0.1$; * significant at $p < 0.05$; ** significant at $p < 0.01$
Note: β (p-value or CI); 95% confidence level

IMPORT = Resource Importance; SC = Social Capital; NGO = NGO Resource capabilities; FR = Firm Resiliency; SCDO = Supply Chain Disruption Orientation; RI = Perceived Customer Relation Investment; EDU = Education; IND = Industry