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Twelfth Edition

Editor's Note

By: Gregory L Walterhouse Editor-in-Chief

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The IPSA Journal is an opportunity to publish manuscripts about leadership issues and best practices applicable to all facets of public safety, and to provide the public safety community with timely access to pertinent information that impacts decision- making, policy, administration, and operations. Our readers and contributors represent the entire public safety community including law enforcement, fire service, EMS, 911 telecommunications, public works (water, sanitation, and transportation), public health, hospitals, security, private sector, and emergency management.

This issue contains the following peer-reviewed articles:

1. "Igniting Opinions: Understanding Public Knowledge on Fire, EMS, and Hybrid Engines" by:

Matt Lesenyie and Blake M. Yamamoto.

2. "Evacuation Preparedness and Disaster Resiliency in Kosovo, North Macedonia, and Utah"

by: Mary Bennett, Jordan Newman, and John R. Fisher.

3. "Social Identity Theory in Fire Departments" by: Erik Jennings Litzenberg

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It is the vision of the IPSA Journal to continually accept manuscripts and to release future editions of the IPSA Journal. We seek high-quality manuscripts from all public safety professionals, academia, researchers, and scholars. The IPSA Journal is published bi-annually in June and December. I encourage those interested to download and review the IPSA Manuscript Guidelines, use the IPSA Journal Template, and submit a manuscript to us for publication consideration.

There is so much knowledge to share within and between each public safety discipline, and I invite you to be a part of it.

Stay safe,

Gregory L. Walterhouse

IPSA Journal

If you have any questions about the Twelfth Edition of the *IPSA Journal*, any of its contents or would like to contact an author, please contact us at info@joinipsa.org.

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Igniting Opinions: Understanding Public Knowledge on Fire, EMS, and Hybrid Engines

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Igniting Opinions: Understanding Public Knowledge on Fire, EMS, and Hybrid Engines

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Abstract

Public opinion regarding Emergency Medical Services (EMS) and the fire service is relatively understudied, and even the most recent research is more than a decade old. Given the rapidly changing nature of both fields, this research project attempts to provide a current outlook on the public's views regarding EMS and firefighting. An online survey of 364 California adults was used to assess the public's knowledge regarding response times, shifting to hybrid–electric fire apparatus, cardiopulmonary resuscitation (CPR) survival rates, and many others. The survey found the public has unrealistic expectations regarding CPR survival rates and fire calls, overestimating both. The public is also uneven with respect to preparedness. Specifically, the survey gathers data on smoke detector maintenance, fire extinguishers in the home, and knowledge of the "close before you doze" protocol. Results demonstrate widespread support for the purchase of hybrid–electric fire apparatus, public operation of ambulances, and the hiring of single–role paramedics. While these results have their limitations, these findings can inform and enhance current fire prevention efforts and patient outcomes for fire departments/EMS agencies across California.

Key Words: Firefighter, paramedic, response, EMS, preparedness, hybrid–electric fire engine, California

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Introduction

In the United States, over 240 million calls to 9-1-1 are made every year—roughly one call every 7.6 seconds (National Emergency Number Association, 2021). The first responders that are dispatched to these 9-1-1 calls: firefighters, emergency medical technicians (EMTs), and paramedics answer the public's call for service at all times of day and night, ranging from structure fires to medical emergencies. Operating under such circumstances, these first responders are constantly in the public eye during its most urgent crises. Their profession is predicated on problem solving, customer service, and public trust. This critical and demanding nature of the fire service and Emergency Medical Services (EMS) invites a deeper discussion about how well these professionals are living up to the high expectations and numerous roles they serve.

Beyond the operational aspect of 911 service, fire departments and EMS providers also serve preemptive roles in their communities. Many fire departments operate a fire prevention bureau/division that is tasked with mitigating fire and life safety hazards through fire code enforcement and fire safety education (Los Angeles Fire Department, 2023). In addition, some actively participate in cardiopulmonary resuscitation (CPR) education campaigns like the "Safer City Initiative," where firefighters and nurses train 9th grade students in CPR (Torrance Fire Department, 2023). While some of these campaigns have the benefit of data assessing their scope and effectiveness, there are many others that do not.

While their profession is built upon hundreds of years of tradition, the fire service and EMS are not static as they are constantly adapting and improving their best practices. The emergence of new technology like the hybrid diesel–electric fire apparatus offers the potential

to reduce carbon emissions and fuel costs, and its adoption has already begun by the Los Angeles Fire Department (DeMuro, 2022). Moreover, staffing shortages and increasing response times by private EMS companies have prompted some municipalities like those in Torrance, California to procure and operate their own ambulance fleet, which could signal a growing shift away from the mostly private model. Given the recency of such developments, little is known about the public's attitudes towards these changes.

With this outlook of the fire service/EMS in mind, this study intends to capture the public's current perspective on both professions, asking the question, *"What are the public's perceptions and understanding of the fire service and EMS?"* This study will examine previous research on the subject, explain its methodology, summarize key findings from the data, and discuss its implications

Literature Review

Bureaucrats and Public Trust

The relationship between fire/EMS professionals and those they serve is rooted in broader theories of bureaucracy and public trust. Numerous scholars have found that frontline bureaucrats (e.g. teachers, police officers, and firefighters) occupy intimate and often consequential positions within their communities. Lipsky conceptualizes these public positions involve three distinct elements: 1) "consistent interaction with citizens," 2) "a high level of discretion in their everyday tasks," and 3) "the power to make a significant impact on those they serve" (Lipsky, 1969, p. 2). Thomas further argues such an arrangement is "asymmetrical," because expertise and the capacity to act are held overwhelmingly by public servants. Even

with this asymmetrical nature, citizens maintain this relationship because of the "fiduciary trust" they have in public servants to act in their best interest without taking advantage of their position (Thomas, 1998, p. 170). Despite this interdependence, Lipsky asserts that both sides are somewhat disconnected because the service population "does not serve as primary reference groups for these bureaucrats" (Lipsky, 1969, p. 2). Public support is a necessity at the street–level, but oftentimes there are few linkages and opportunities to gain widespread feedback from people who receive public services.

Public Perception and Understanding of Firefighting

Public opinion research of street–level bureaucrats has been mostly unexplored for firefighters, since most research is focused on improving operational practices rather than public perception. There are very few studies that evaluate the public's perceptions on firefighters and their profession as a whole, but this small body of research finds that 'trust' is a recurrent theme. In a 2014 study, firefighting was the most 'trustworthy' profession in the world, with well over 80% of the world conveying high trust towards firefighters (Müller et al., 2016; Thomas 1998). This is further substantiated by Bull et al.'s study measuring medical care provider traits, which found that the public on average conveyed more trust in the advice of firefighters than their own general practitioner (Bull et. al, 2021). Outside the notion of trustworthiness, extant research does not provide a complete picture of how the public perceives firefighters nor does it illustrate what the public knows about their daily operations.

Public Perception and Understanding of Emergency Medical Services (EMS)

There are comparatively more studies on how the public perceives EMTs and Paramedics than there are about firefighting. Most literature evaluating EMS providers has been written from the perspective of quality improvement, concentrating on patient satisfaction in the prehospital setting (Doering, 1998). Those studies have generally found that patients were satisfied with the prehospital care and transport they received, with over 66% rating their experience as 'excellent' (Studnek et al., 2013). However, a recent extension does elicit opinions on patient satisfaction, knowledge, and views on EMS more broadly (Jacobs et. al 2017). In sum, the public holds EMTs and Paramedics in high regard, but has virtually no understanding about the nature of their work (Crowe et al., 2016). Some of those misconceptions stem from media portrayals of crisis and trauma care. Specifically, that media representations of crime over time cultivates a notion of the world as a mean and dangerous place, generating in *citizens a mean world syndrome* (Gerbner 1998). Recent work suggests this might be amended as *scary world syndrome* as the heightened sense of insecurity extends to non-criminal societal risks (Anderson et. al 2024). In light of this mass media treatment, it could be the case that citizens have unrealistic expectations of first responders, such as rapid response times and interventions that produce unrealistically high survival rates. One pathway to explain that dynamic is that high expectations and/or ignorance about the work product of first responders is a coping mechanism for the latent fear perceptions. These conceptions are top of mind when citizens consider funding requests from fire departments (Boland 2022).

Not only was the public unable to distinguish the differences between EMTs and Paramedics, they also held unrealistic expectations of situations they encounter in the field. For

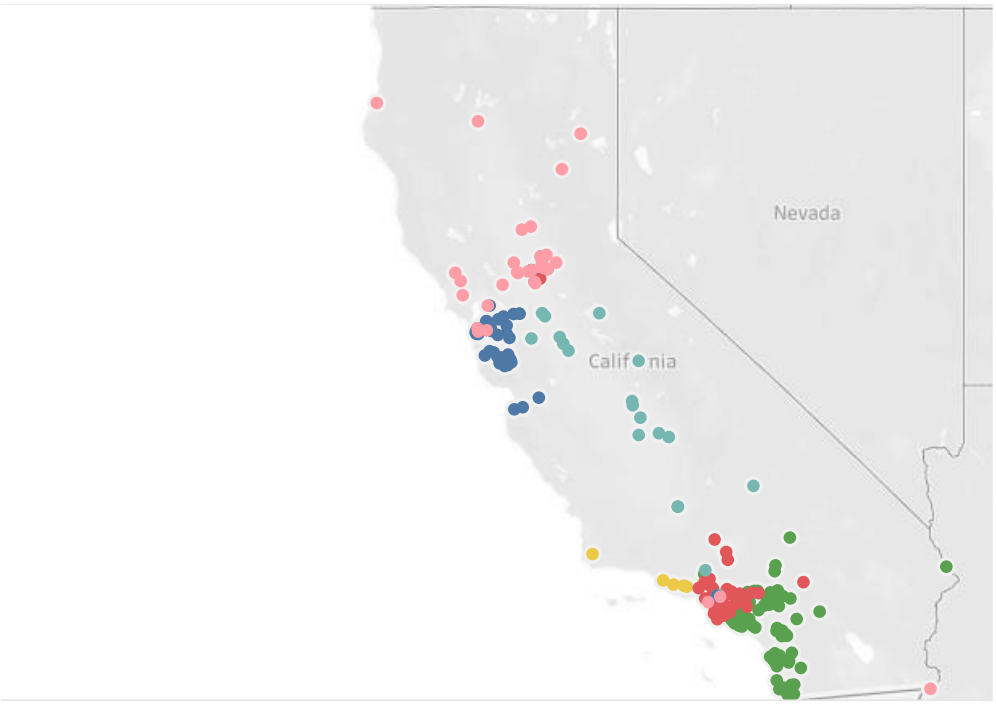
instance, over half of those surveyed believed at least 60% of cardiac arrest patients survive to hospital discharge, when it is actually less than 10% (Crowe et al., 2016; Ouellette et. al 2018). The national model established by Crowe and company is seen as a replicable 'gold standard' to delve into the public's psyche toward the EMS profession as a whole and, by extension, firefighting. For this reason, a partial replication of Crowe et al. is attempted by applying their questions to the firefighter context. Such a project should build upon their findings with an emphasis on Californians, their opinions, and knowledge of firefighters/EMS providers.

Methodology

To examine the public's knowledge and perceptions of firefighting and EMS, an online survey experiment replicating the work of Crowe et. al (2016) was conducted from March 17th through April 9th, 2023. This design enlisted a convenience sample of 364 California adults from the Prolific online survey panel. The ideological composition of the state was sought: 47% Democratic, 24% Republican, and 23% Independent (Baldassare et al., 2022). Responses were collected until the sample captured roughly 151 Democrats, 102 Independents, and 108 Republicans. Respondents who completed the survey were compensated $1.37 per response. Respondents that currently lived in California were requested and filtered by political partisanship. Nonetheless, a political party question was included in the survey to verify partisanship.

Figure 1

Distribution of Respondents in California



Geographic distribution of respondents based on recorded latitude and longitude for each response. Each dot represents a respondent.

A screener question for state of residence was also included, and any survey takers who responded that they did not reside in California were rejected. Respondent location was further assessed using IP address data, allowing responses from outside of California to be removed. In total, 364 individuals provided survey responses for analysis. There were three respondents who reported they "do not currently reside in California," so the exclusion of these respondents left 361 survey responses to be analyzed. The geographic distribution of respondents, using Internet Protocol (IP) addresses, throughout the state of California is illustrated in Figure 1. Appendix B includes information about the color-coding scheme and frequency of responses for each region.

Survey Instrument

The questionnaire was written based upon a study by Crowe et al., 2016, ongoing public education campaigns, and input from current and former fire department officers. Questions from the Crowe et al., (2016) survey are replicated here, particularly those about CPR patient survival rates and satisfaction with EMS/firefighter experiences. Additionally, another set of questions were curated to evaluate the public's knowledge of several fire prevention campaigns. For instance, the "Close Before You Doze" campaign encouraging the public to close their doors before sleeping to reduce potential fire spread, while other questions probe smoke alarm maintenance. These questions were supplemented by commentary from former Long Beach Fire Department Battalion Chief Frank Hayes and Nevada Test and Training Range Captain Brett Thompkins, who suggested questions measuring the public's knowledge of typical emergency call volume and preparedness for a fire in the home.

Additionally, to gauge the public's opinion on proposed developments in the fire service and EMS – especially the shift to hybrid diesel–electric fire apparatus and public operation of ambulances – a set of experimental questions were asked of respondents. Respondents were randomly assigned to a control group or one of three framing treatments. The control group was asked about their support for department's purchasing hybrid–electric fire engines. Those assigned to treatment groups for the question regarding support for hybrid fire trucks were given a frame about either: (1) the total cost of purchasing a hybrid fire truck, (2) fuel savings of a hybrid truck over its lifespan, or (3) their utility of a hybrid fire truck to brush fire risk situations. Respondents were also asked about where they lived in California based on a map of the state, as well as the type of region they lived in (i.e. rural, suburban, urban). Lastly, a set of

standard demographic questions (i.e. age, income, and education) was added towards the end of the survey. The final questionnaire consisted of 33 questions, which were programmed into a Qualtrics survey and made available to a Prolific survey panel.

Before the survey was administered, the project was approved by the Institutional Review Board of California State University, Long Beach. A pilot study was pilot run using undergraduate student volunteers before the survey was administered on the California panel.

Results

Study Sample

The overall demographic characteristics are listed in Table 1. Overall, most respondents fell between the age of 20–35 (63.1%), held at least a 4–year college degree (47.4%) or had some college experience (21.2%), and resided in a suburban area (55.3%). Over half did not have any firsthand experience with Fire/EMS personnel, however nearly a quarter had experience with both.

Table 1

General Demographics

How would you describe your partisanship?	
Democrat	41.8%
Independent	27.9%
Republican	30.4%
Which type of area do you live in?	
Rural	7.5%
Suburban	55.4%
Urban	37.1%
What is your annual income?	
Less than $10,000	15.3%
$10,000 – $49,999	31.7%
$50,000 – $99.999	27.2%
$100,000+	25.8%
What is your highest level of education?	
High School or less	10.5%
Some College	21.4%
2–year degree	10.6%
4–year degree	47.5%
Professional/Doctorate	10.0%
What is your firsthand experience with Fire/EMS?	
Emergency Medical Services	18.1%
Firefighters	8.0%
Both	23.4%
Neither	50.4%

N = 361

A. Safety Preparedness

Part of this study was geared toward establishing some preliminary safety data amongst the sample. While some of these questions replicate prior studies, a baseline of knowledge for the California sample population was established. Since one of the core research questions concerned EMS services, it was investigated how many individuals had access to

non-emergency health services. One concern that was addressed was whether the emergency room is being used by the public as a primary medical resource.

Table 2

Safety Preparedness

Have medical resource besides the Emergency Room		
	Yes	76.6%
	No	23.5%
Have you ever received CPR training?		
	Yes	48%
	No	52%
N=363		
When was the last time you received CPR training?		
	Within the last year	11%
	2–3 years ago	21.8%
	4 or more years ago	67.2%
N=174		
For patients in cardiac arrest who receive CPR, what percentage of patients do you believe survive?		
	Between 0–29%	20%
	Between 30–70%	55%
	Between 71–100%	25%
N=364		

An overwhelming majority of respondents (76%) reported they have a medical resource they could go to instead of the emergency room if they had medical distress (Table 2). Attitudes about cardiopulmonary resuscitation were also probed because CPR training is believed to be an indicator of emergency preparedness. It was found that only 48% had received CPR training, and over two-thirds of those had received their training four or more years ago (Table 2).

It should be noted that CPR certifications are valid for 2 years (American Heart Association, 2023), so most respondents either did not receive CPR training or did not recertify. Using the

AHA standard, that means that generously about 30% of the 48%, or 14% of the entire sample (52 of 365) has a valid CPR certification. The remaining 313 respondents have either never received or have allowed their certification to lapse. Finally, respondents were asked about the survival rates for cardiac arrest when CPR is performed. Just as Crowe et al., found in 2010, respondents highly overestimated cardiac arrest patient survival rates after CPR was administered, given that only 10% of cardiac arrest patients survive to hospital discharge (Crowe et al., 2016). Existing research suggests the public believes the survival rate is approximately 72% (Oulette et al., 2018). Results showed similar numbers with a quarter of the sample saying a survival rate of more than 70% and 55% of the sample guessing between 30–70% survival (Table 2).

B. Fire Safety Preparedness

Before specifics about firefighting personnel were asked, it was important to gather baseline information on home fire preparedness. To do so, questions were asked about the condition of smoke detectors, the presence of fire extinguishers, and knowledge of "close before you doze" recommendations. It was found that nearly 40% of respondents could either not remember the last time they checked their smoke detector or had done so over a year ago. Conversely, about 60% had tested their smoke detector within the last year. A similar number of Californians were found to be prepared with a fire extinguisher in the home (61%). Given that an average of 346,800 house fires per year is reported (Ahrens & Maheshwari, 2021), both findings are interpreted in an encouraging way, with roughly two-thirds of the sample being at least somewhat prepared for these events. An additional analysis was run to see if detector batteries and extinguishers are related to class (using an annual income of $70,000+ as the cut

point), and it was found that there is no difference between wealth and smoke detector maintenance. A marginal, but not statistically significant, difference in fire extinguisher ownership was found, with 61% of those making less than $70k and 54% of those making more than $70k owning fire extinguishers.

Table 3

Fire Safety Preparedness

When was the last time you tested or replaced the batteries in your home's smoke detector?	
Within the last 2 months	17%
2–6 months ago	23%
6–12 months ago	21%
A year or more ago	17%
Can't remember or Don't know	21%
Do you have a fire extinguisher in your home?	
Yes	61%
No	34.5%
Don't know	4.5%
If a fire started in my home, having the door closed in the room where the fire started would help reduce the damage to my home.	
True	73%
False	27%

N= 364

Lastly, awareness of the Fire Safety Research Institute's "close before you doze" advisory was asked about. Studies by Underwriters Laboratory have demonstrated that closing a bedroom door can both reduce room temperatures and limit the spread of house fires, both factors that increase the survivability of house fires. The statement "If a fire started in my home, having the door closed in the room where the fire started would help reduce the damage to my home" was presented as a true or false question. Some 73% of respondents answered true, which is a positive finding. While it was not asked if they abide by this advisory, that is an interesting dimension for future research.

B. Attitudes Toward Public Safety Professionals

1. Professionalism, Trust, and Empathy

Another domain that was probed was the perceived professionalism of first responders. Respondents who reported firsthand contact with emergency services (Table 1) were offered a set of three follow-up questions on competence, trustworthiness, and empathy. It was found that over 90% of this subsample with firsthand interactions (N=49) rated first responders as competent and trustworthy. A prior study on patient empathy was instructive for the next question, where first responders were compared to primary care physicians. Bull and colleagues (2021) found that firefighters were rated as more caring than general practitioners. While the difference was not statistically significant, it was found using a robust six-question battery. In a partial replication of Bull et al. (2021), the subsample was specifically compared with the entire sample on the question of empathy. A similar result was found by summing the total of “very empathetic” and “empathetic” responses: 88% for first responders and 73% for personal doctors. Using a z-score calculation of proportions, this was found to be a significant difference (p=.05). The findings of this study have replicated numerous results from previous research. Like Crowe et al., (2016) results on prior experiences with first responders, the survey panel for this study had resoundingly positive experiences. Respondents conferred high levels of trust, empathy, and competence in both firefighters and EMTs/Paramedics, which confirms previous research establishing the honorable standing that firefighters/EMS providers hold in the community.

Table 4

Professionalism

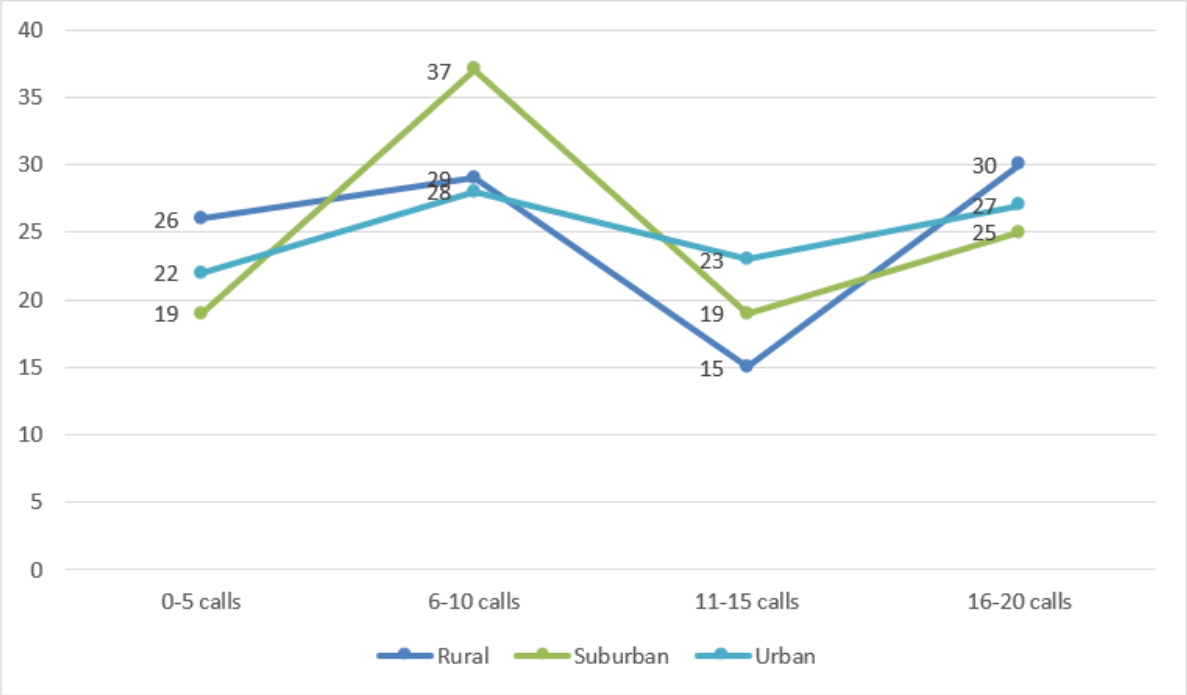
Rate the competence of the first responders who responded to your incident		
	Very competent	63%
	Competent	32%
	Don't know	4%
Rate the trustworthiness of the first responders who responded to your incident		
	Very trustworthy	63%
	Trustworthy	30%
	Don't know	6%
Rate the empathy of the first responders to your incident		
	Very empathetic	41%
	Empathetic	47%
	Don't know	6%
	Unempathetic	6%
N=49		
Rate the empathy of your personal doctor		
	Very empathetic	15%
	Empathetic	58%
	Don't know	18%
	Unempathetic	8%
	Very unemphatic	1%
N=362		

2. Call volume

It is important to establish a baseline on call volume before moving to more detailed assessments of service calls. The expectations were that respondents would overestimate the workload of firefighters. It was found that about one third of respondents believed that firefighters receive roughly 6–10 calls in a 24-hour shift (Figure 2). Little variation was shown in response proportions across residential areas.

Figure 2

Expectations of Call Volume (by residential area)



The surprising aspect of this outcome was that perceptions remained roughly the same regardless of population density or terrain. Specifically, it was thought that urban respondents would perceive more frequent calls per shift. From the author's experience, some California units see significantly more work than average. For instance, San Diego Station 4 averages 25

calls per day and units at Los Angeles Station 9 average 80 calls a day. Although both of these previous examples are outliers, they notably conditioned expectations.

3. Fire calls

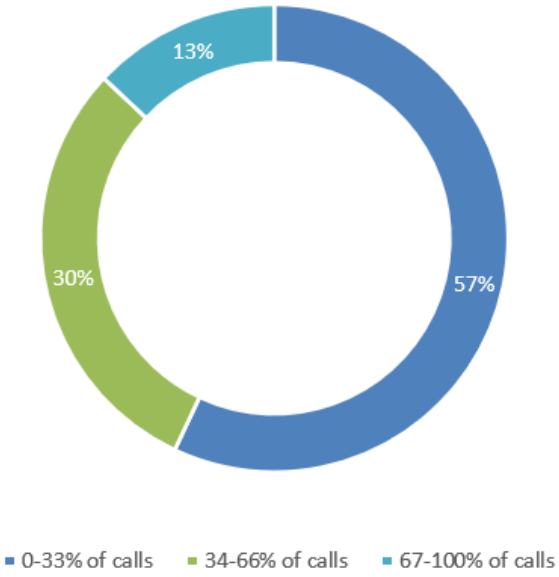
Respondents were asked, "What percentage of fire department calls are fires?" and found that the public believe the majority of service calls are not fire related. According to the National Fire Protection Association (https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/fire-department-calls) 3.7% of fire department calls are for fires. Fifty-seven percent of survey respondents said a third or less of calls are fire related, while 30% said two thirds, and about 12% believe that fire emergencies represent the overwhelming majority of calls. Just two people marked 3 and 4%, about 14% of the sample correctly said less than 15% of calls are for fire. This is an interesting baseline to establish before asking questions about EMS provision. Specifically, the conversation about what fire departments do and the overwhelming demand for emergency medical response could be more robust considering these staffing decisions are before local governments.

The data further revealed the public's flawed perceptions of the firefighting profession. Over 40% of respondents believed that 40% or more of fire department calls for service were responses to fires. In reality, this represented only 4% at the national level (United States Fire Administration, 2022). In fact, it is important to note that nearly two thirds of fire department calls for service every year are *medical* in nature (United States Fire Administration, 2022). These findings demonstrate that the public is unaware of the changing nature of the modern fire service towards the administration of medical aid rather than extinguishing fires. This lack of awareness about everyday firefighter operations could lead some to mistakenly believe that

firefighters ‘sit around the station’ waiting for fires that occur far less frequently than they have in the past. Such sentiment could provide the conditions for a reduction in fire department funding, with some calling for a complete restructuring of “an overpriced, tradition driven department” structure (Boland, 2022). However, this reasoning is dangerous considering that departments are getting much busier as call volumes have increased over the past decade (NFPA, 2022). Many fire departments are being forced to respond to more calls with less funding and staffing at their disposal. If the public is ill informed, then they are less likely to support modernizing fire departments with the resources they need.

Figure 3

Respondent’s Beliefs About the Number of Fire Related Emergency Calls

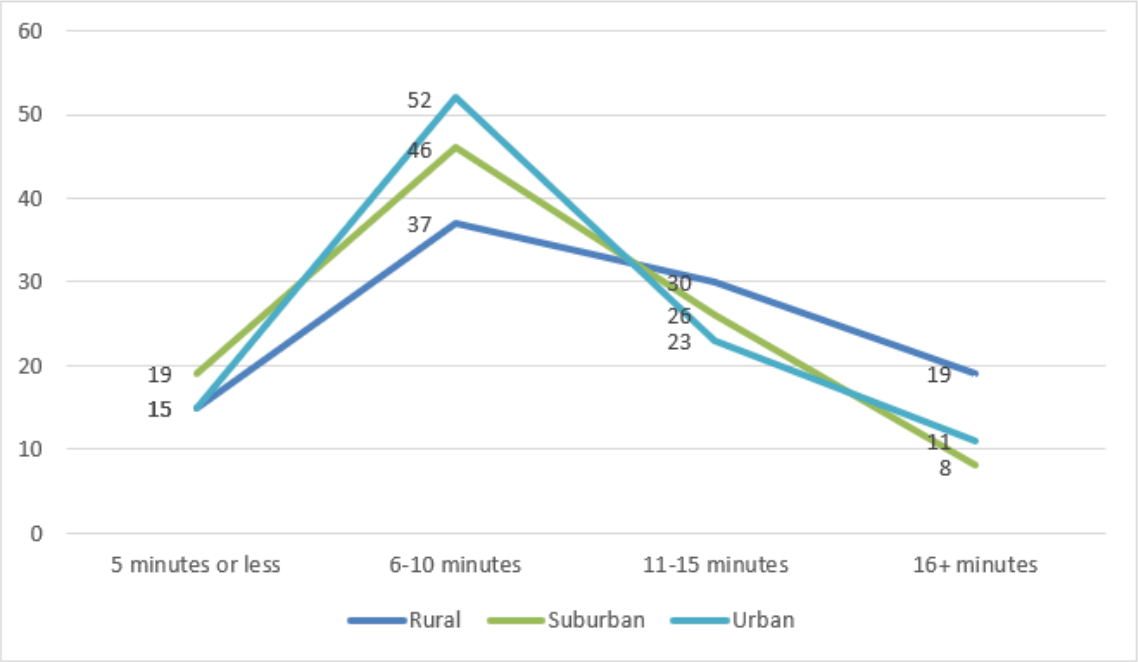


4. Response time

Regarding a typical fire response, nearly half of respondents expected first responders to arrive within 6–10 minutes of placing a 9-1-1 call (Figure 4).

Figure 4

Expectations of 911 Call Response Time (by residential area)



5. Single–role medics

The public demonstrated more congruence with their opinions on fire departments hiring single–role paramedics 48.9% favored and 27.0% strongly favored the proposal. The survey further assessed factors that could affect EMS patient outcomes, as well as their views towards a fundamental shift in the current EMS model. Specifically, a trend over the past twenty years is to increasingly rely upon private EMS operators instead of municipal EMS operations.

Control Framing "Single–role" paramedics are emergency responders at your fire station who treat medical emergencies, but do not have training in firefighting.

Information Framing According to National Fire Protection Association, less than 4% of all fire department calls in the U.S. were responses to fires, while 71% were medical assistance calls. Since most calls are now medical, some have argued fire departments should increasingly hire "single role" paramedics trained for medical emergencies, but not firefighting.

Both frames were followed by the same question, “Do you favor or oppose the hiring of "single role" paramedics in your local fire department?” Respondents were randomized into one of the two framings, with 174 in the Control framing group and 189 receiving the Information frame.

Table 5

Attitudes Toward Hiring Single–Role Medics (by partisanship and information frame)

Partisanship	Democrats		Independents		Republicans	
Framing	Control	Info	Control	Info	Control	Info
Favor	74%	82%	81%	77%	74%	75%
Oppose	5%	4%	6%	6%	21%	20%
Don’t Know	20%	14%	13%	17%	5%	5%
Observations	74	76	48	54	52	59

Despite framing information, no substantive differences were found between treatments. Partisanship was disaggregated, and one small difference was found: Democrats were less unsure and more in favor of single-role medics when additional information about the demand for non-firefighting staff was received. What is more notable is the opinion stability across the two framing treatments. Prior expectations suggest that this is an issue that very few people have thought about before. Because of that dynamic, it was considered important to provide more context about why departments might desire more medical staff. However, the number of responses indicating “Don’t Know” was lower than expected for such a technical issue.

6. Public Operation of Ambulance Services

Finally, it was considered important to gather data around the shift to private ambulance operations. In California, roughly 81% of ambulances are private enterprises (Jacobs et al., 2017, p. 16). A question for policymakers is twofold: (1) how private operations compare to public operations; (2) whether the public prefers for the government to provide this public good in-house or buy from a private ambulance provider. The first question is measured by looking at performance outcomes and costs. The second question is more properly answered with a survey. Because this is another low-salience technical issue, respondents were prompted with a short informational statement before the question was asked. That statement read:

> According to the California Emergency Medical Services Authority, private ambulance companies operate 81% of ambulances and respond to 76% of all 911 calls in California. In contrast, local fire departments operate 19% of ambulances and respond to 24% of 911 calls in California.

The question read: "Do you favor or oppose a shift toward public operation of ambulance services?" Results show that 61% of respondents favored this change, 8% opposed it and 31% did not know their opinion on the matter. For one, the high percentage of "don't know" responses track research expectations for such an issue. The high uncertainty also shows there is plenty of malleability around this issue were there is a political campaign to reduce(increase) privatization of ambulance services. However, this finding cannot be accepted without acknowledging its limitations. The question itself was presented as a normative statement, which did not present respondents with the potential cost or tax increases that may be incurred to fund this policy. If presented with this information, it might dissuade the public from

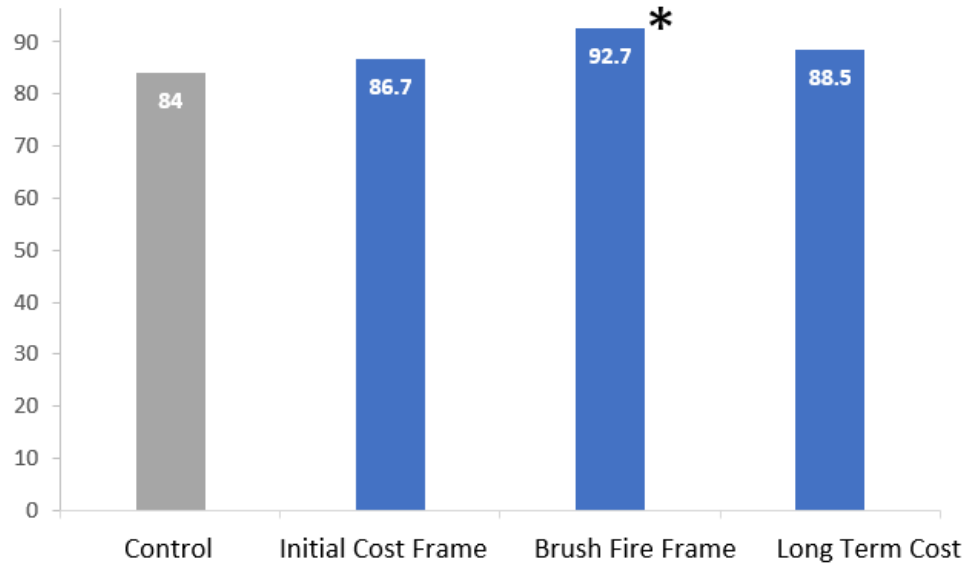
supporting public operation of ambulances if the current model is the cheaper option. Ultimately, these are cost and performance metrics that public officials must consider.

C. Public Opinion About Safety Equipment

The wording of the technology was used as a baseline measure. It is new technology, and hybrid transportation technology has meanings that vary from gas-powered electric generation to modest EV operation, to extended range Plug-in Hybrid EV operation. Various rhetorical frames that might increase or depress support for vehicle adoption were considered. Framing effects occur when certain aspects of a policy choice are emphasized to the exclusion of other aspects (Druckman 2001). In this case, the treatment emphasis highlights either: (1) the initial cost, (2) the brushfire risks of current technology, or (3) the long–term operational costs. Respondents were randomized into the control and three treatment groups, each group had between 85–88 respondents. The political partisanship within randomized treatments mirrors that of California, so partisan imbalance is eliminated as a confounding variable. Following the control description or experimental framing they were asked "Do you favor or oppose the purchase of hybrid–electric fire trucks?" Experiment participants were presented with a response set containing five options: Strongly favor, Favor, Don't know, Oppose, and Strongly Oppose. For the analysis, the response set was dichotomized by combining Strongly oppose and Oppose, Strongly favor and Favor, while the Don't know responses were dropped. Across all four groups, roughly 18–20% of respondents marked "don't know," and no differences were seen with respect to the treatment group.

Figure 5

Survey Experiment: Purchase of Hybrid Electric Fire Apparatus



As Figure 5 shows, no statistically significant difference was found between the control group and the two cost frames. It was found that the brush fire prevention frame was most effective and is statistically different from the control group at (p=.05). With additional analysis, it is clear that the opinion change is amongst Republicans in the sample. While Democrats and Independents are overwhelmingly in support of purchasing this equipment invariant of how the question is framed. Republicans are more evenly divided in the control group 52% in favor to 28% opposed. That number jumps to 75% in favor of the initial cost frame, 85% in favor for the brush fire prevention frame, and 70% for the long–term cost framing. It is attitude change in this group that is pushing the overall difference between conditions. Initial pilot testing of the survey among students had shown that support for shifting to hybrid–electric fire apparatus declined sharply once they knew the initial cost of each individual apparatus, making this result unexpected. While it was expected that support would be strongest given a frame about

savings in fuel costs, it was unforeseen that support would remain high when respondents were told the overall cost of a hybrid–electric fire apparatus. This is important to know because as these technologies are introduced, the framing of policy choice will impact their adoption by local agencies. In other words, as fire departments seek to make these purchases, they would do well to articulate the brush fire risk reduction and potentially the long–term savings frames to citizens and policy makers in their jurisdictions.

Discussion

This study has revealed some deficits in public understanding of the fire and emergency medical services. The data illustrates there are key areas that California fire departments and EMS agencies can target to improve fire prevention efforts and patient outcomes – most notably "Close Before You Doze" campaigns, CPR trainings, smoke detector maintenance, and fire extinguisher ownership. Public education campaigns should also reinforce that firefighting is now inextricably linked with EMS to correct the assumption that firefighters spend a significant amount of their calls responding to fires. As confirmed by previous research, those with firsthand experience with firefighters/EMS personnel viewed their first responders with high trust, competence, and empathy. While the public may not necessarily understand the daily operations of firefighters, EMTs, and paramedics, people still hold them in high regard. This study affirms that firefighting and EMS continue to maintain and build upon highly respected reputations within their communities.

Data from this study also establishes support for policy shifts that entail the hiring of single–role paramedics, the purchase of hybrid diesel–electric fire apparatus, and public operation of ambulances in California. While a majority are in favor of these proposals, more

research is needed to investigate the causes of public support, opposition, or uncertainty. Moreover, future studies regarding the question of public operation of ambulances will need to provide respondents with cost estimates that the taxpayer would incur, since that could be a significant factor that is not accounted for in the results of this study.

Although this study has its limitations, it still holds merit to the future evaluation of public perception and understanding in the world of first responders. The methodology used in this research emulated Crowe et al.'s (2016) survey design and focused its scope to California, but it can be narrowed even further. Individual fire departments or EMS agencies can use a similar technique to evaluate public opinion within their own jurisdictions. Such research can inform department/agency shifts in policy and identify areas of improvement for public campaigns that are specific to their own needs and deficits. Public opinion research in firefighting and EMS is still developing, but future studies can continue to bridge the understanding and perceptions of first responders and those they serve.

While prior research has been validated, some results are cause for concern. It is troubling that under half of respondents received CPR training (Table 2) and even those received their training four or more years ago. This is even more concerning given that positive cardiac arrest outcomes are heavily dependent on CPR administration and defibrillation. Previous research has shown survival rates for cardiac arrest patients outside of the hospital can double or even triple if CPR is performed (American Heart Association, 2023). This is underscored by the fact that severe damage to the heart and brain can occur in only minutes of a lethal heart dysrhythmia (American Heart Association, 2023). Therefore, the lack of recent CPR training—or any training at all—coupled with the preconceived notion that most cardiac

arrest victims will survive could lead to delays in bystander CPR administration or confusion during critical emergencies.

Limitations

Although this research design is optimal for an undergraduate thesis, it faces several shortfalls. The sample is ideologically representative of the state, but it is not in other key demographics (i.e. race and gender). Racial and gender data was not collected, so it is uncertain how this study's convenience sample reflected the racial and gender composition of the state. Thus, generalizing these results to the whole state of California is cautioned. Moreover, the quality of the responses may have been jeopardized if respondents did not give deliberate answers. The survey completion time is estimated to take around 6 minutes, but respondents who took significantly less time to complete it may not be providing thoughtful responses. In addition, some respondents may not have been honest about their residency in California. Mapping the longitudinal and latitudinal data collected from each respondent revealed that some took the survey in states other than California. It is uncertain whether these respondents actually live in California but were visiting other states when they completed the survey, or whether they are permanent residents of another state but chose not to disclose such information. Therefore, some opinions reflected in the data may be reflective of respondents from other states and not necessarily Californians.

Recommendations

The conclusion of this research program identifies two primary avenues for further exploration. The first avenue pertains to public education programs. The data indicate that citizen resiliency, as measured by fire preparedness, reveals a bifurcated population: one

segment maintains current in-home fire safety equipment, while the other is significantly behind in upkeep. A similar pattern emerges in the data on CPR certification. These findings, consistent with results from both the United States and international studies, suggest a substantial opportunity to enhance the adoption of these safety practices. Local safety departments could continue their public education campaigns or augment them with economic incentives to update their equipment. In some jurisdictions this might include subsidies for smoke detector installations and battery replacement. Recently the San Jose California Fire Department collaborated with a community group to test and replace smoke detectors in mobile home parks, the theory being that there is a class divide on safety preparation and the bulk of fire risks are borne by low-income residents.

The second avenue concerns budgetary requests by safety departments. In the framing experiment, the most significant increase in support was associated with the brush fire frame. Survey respondents were most persuaded by the vehicle's utility for a specific application, namely wildfire management. Given Californians' familiarity with the destructive power of wildfires, their acceptance of this frame indicates a willingness to invest more in solutions for specialized problems. This suggests that in other regions, the most compelling argument for purchasing specialized hybrid-electric equipment may be its functional utility rather than fuel cost savings or environmental benefits. Therefore, when requesting safety equipment, departments should emphasize utility frames in their proposals.

From a scholarly perspective, there are several avenues to extend these research findings. Future studies might explore the popularity of specialized emergency equipment for region-specific applications. While proposing hybrid-electric apparatus for flood management

may not be practical, it could be suitable for dense of urban environments or situations requiring limited ventilation. Additionally, future research could help disaggregate attitudinal differences among demographic segments of the population. For example, examining the reputation of first responders across different age and gender groups, as well as the influence of socioeconomic status on opinions about public safety preparedness and budgetary allocations, could provide valuable insights.

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Appendices

Appendix A

Justification and Ethics of Methodology

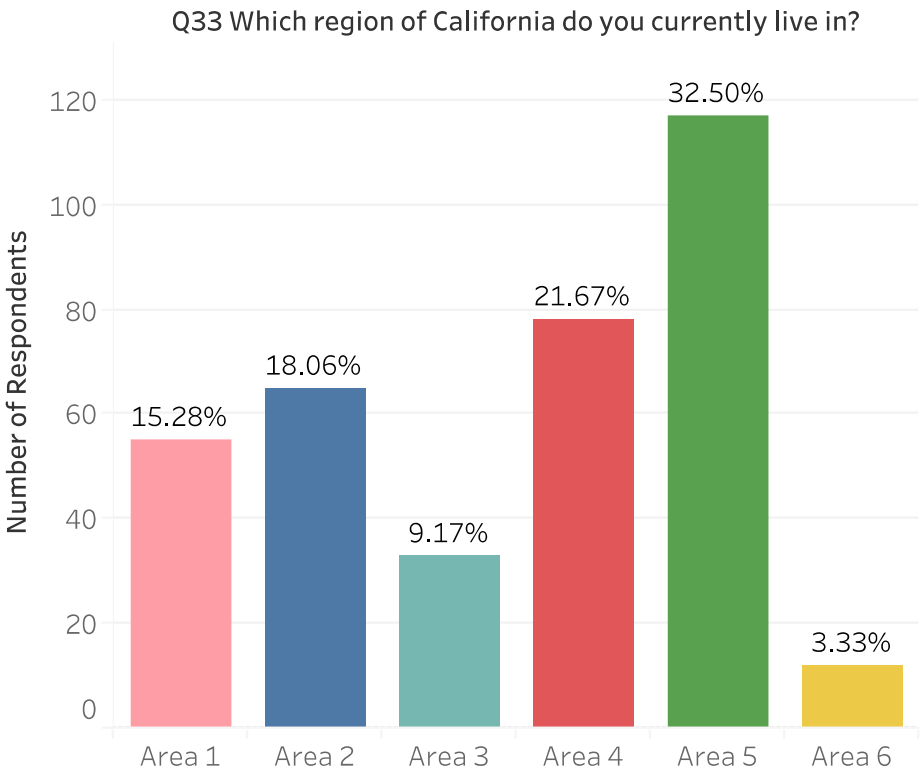
For the constraints and timeframe of the UHP thesis, this research method was appropriate and produced the most expedient results. This undergraduate project did not have the funding or resources for more preferable research designs (i.e. Crowe et al.'s method of telephone interviews with clustered stratified sampling), so the use of a digital Qualtrics survey was the next best option. An online Qualtrics survey was fairly inexpensive, easy to use for respondents, and enabled us to capture the responses of adults across California. Time was also a factor, considering that the project needed to be completed within a year.

Moreover, the ethical risks with such a design were minimal. Respondents were able to participate by their own choosing, skip questions they did not want to answer, or drop out of the survey at their discretion. However, it is acknowledged that the subject of this study may be triggering to some with traumatizing experiences involving first responders (i.e. a medical emergency or fire). Therefore, survey questions were written more broadly and did not intrude directly into these sensitive experiences.

Appendix B

Distribution of Respondents by Region

Which region of California do you currently live in? (Mark your response below map)



Depicts responses to Q33 - "Which region of California do you currently live in?" Percentage of total respondents are labled at the top of each bar corresponding with each Area, and the raw number of respondents is shown on the y-axis at left. Each 'Area' encapsulates the following counties:

Area 1: Del Norte, Siskiyou, Modoc, Humboldt, Trinity, Shasta, Lassen, Mendocino, Tehama, Glenn, Butte, Plumas, Lake, Colusa, Sutter, Yuba, Nevada, Sierra, Sonoma, Napa, Yolo, Placer, Marin, Solano, Sacramento, El Dorado
Area 2: San Francisco, San Mateo, Santa Cruz, Contra Costa, Alameda, Santa Clara, San Benito, Monterey
Area 3: San Joaquin, Amador, Alpine, Stanislaus, Calaveras, Tuolumne, Mono, Merced, Mariposa, Madera, Fresno, Kings, Tulare, Inyo, Kern
Area 4: Los Angeles
Area 5: San Bernardino, Orange, Riverside, San Diego, Imperial
Area 6: San Luis Obispo, Santa Barbara, Ventura

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Evacuation Preparedness and Disaster Resiliency in Kosovo, North Macedonia, and Utah

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Evacuation Preparedness and Disaster Resiliency in Kosovo, North Macedonia, and Utah

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Abstract

This research paper examines the significant differences in emergency preparedness between the Balkan countries of Kosovo and North Macedonia and the state of Utah in the United States, highlighting the influence of their unique socio-economic contexts. Using qualitative interviews with government officials, educators, students, and civilians, the study explores individual experiences, governmental responses, and community readiness for disasters. The findings reveal that a history of conflict and limited resources in the Balkans hinder proactive disaster readiness, necessitating external support and community-led initiatives. In contrast, Utah benefits from better resources and emphasizes community involvement, proactive measures, and effective communication, despite challenges like delayed federal funding. The study underscores that preparedness, including evacuation preparedness and having a "go kit," directly leads to resilience by enabling communities to better anticipate, respond to, and recover from disasters. The paper suggests that an overreliance on federal and international funding and resources can hinder community resilience by creating dependency rather than fostering self-sufficiency. It argues that the most resilient communities leverage internal resources, emphasize preparedness training, and cultivate an attitude of self-reliance. Recommendations include prioritizing the development of local resources, policies that encourage community-driven solutions, and targeted education and training programs to build internal capacity. While international cooperation, such as student exchanges, study abroad programs, and resource sharing (e.g., refurbished equipment), can enhance learning and support, the focus should remain on empowering communities to lead their own preparedness efforts. Educators play a critical role in fostering a culture of preparedness, but the primary responsibility for readiness lies with the citizens themselves.

Keywords: evacuation preparedness, disaster resiliency, community self-reliance, Kosovo, North Macedonia, Utah

Introduction

Studying evacuation procedures in the context of disasters is critical because effective evacuation can mean the difference between life and death. While general preparedness for hazards focuses on a broad range of actions to mitigate risks and ensure safety, evacuation preparedness specifically addresses the immediate, often time-critical, process of moving individuals from areas of danger to safety. Understanding evacuation preparedness requires examining not just protocols but also the cultural, logistical, and geographical factors that shape evacuation behavior.

By comparing evacuation experiences in the countries of Kosovo and North Macedonia (located in the western Balkans in southeastern Europe) with those in the state of Utah in the western United States, we gain valuable insights into how different regions—one shaped by complex political conflict and limited resources, the other by natural hazards and advanced emergency systems—approach the challenge of evacuation. This comparison sheds light on the strengths and gaps in evacuation planning and execution, providing lessons that can enhance strategies globally.

Evacuation preparedness directly contributes to individual and community resilience by fostering confidence, reducing panic, and ensuring quicker, more efficient responses during disasters. Communities with robust evacuation plans recover more quickly and experience fewer casualties, making preparedness a cornerstone of disaster resilience.

Kosovo and North Macedonia and Utah provide an intriguing case study because their contrasting contexts—one with a history of humanitarian crises and the other with advanced infrastructure and frequent natural disasters—highlight diverse approaches to evacuation. This

comparison is important because it allows us to identify universal principles and context-specific strategies, informing better policies and practices. Ultimately, the study of evacuation preparedness is not just an academic exercise but a vital step in saving lives, protecting communities, and improving disaster management systems worldwide.

This paper explores the current state of preparedness and the structures that promote community resiliency in Kosovo, North Macedonia, and Utah. It analyzes transcripts of interviews conducted with individuals from these regions, identifies key themes emerging from the data, and compares these findings to draw meaningful conclusions. By examining these distinct yet interconnected contexts, the study aims to equip decision-makers, educators, and the public with a deeper understanding of the critical role preparedness plays in mitigating disaster impacts and enhancing resilience.

Literature Review

The literature review examines evacuation preparedness within the broader framework of all-hazard preparedness and resilience, focusing on major hazards in Utah, Kosovo, and North Macedonia. Preparedness and resilience are interconnected concepts essential for effectively managing emergencies and disasters. Preparedness encompasses proactive measures taken before an event, including planning, training, conducting exercises, and implementing readiness strategies to ensure an effective response. Resilience, in contrast, highlights the ability to adapt to challenges, maintain functionality during crises, and recover efficiently, facilitating long-term recovery and stability (FEMA, 2024).

Preparedness is a vital component of resilience. Being well-prepared enables individuals, communities, and organizations to respond effectively to crises, thereby enhancing their resilience. This suggests that higher levels of preparedness correlate with greater resilience. Essential preparedness strategies that integrate well-being, meaningfulness, and evacuation planning are crucial for resilience as both a dynamic process and outcome (Gowan et al., 2014) Additionally, communities with robust capacities to develop, acquire, or exchange resources are more likely to demonstrate resilience in disaster scenarios (National Center for Disaster Preparedness, 2024).

In summary, preparedness strengthens resilience by ensuring that essential resources, plans, and training are in place to manage emergencies, thereby reducing risks and enhancing the capacity for adaptive response and recovery (Paton, 2020). To illustrate the need for evacuation preparedness and community resilience, the next section outlines various reasons for evacuations and provides examples of both human-caused and natural hazards that have necessitated evacuations in the state of Utah, as well as in the countries of Kosovo and North Macedonia.

Evacuation

Evacuation is essential when remaining in place poses significant safety risks, as seen in cases of natural and human-caused disasters and forced displacement due to persecution, conflict, violence, and human rights violations. By mid-2024, approximately 122.6 million people were forcibly displaced globally, including 37.9 million refugees who have fled their countries, 8 million asylum-seekers awaiting decisions on their refugee status, and 68.3 million internally displaced persons (IDPs) who remain within their countries (United Nations High

Commissioner for Refugees [UNHCR], 2024). Each group faces unique challenges, such as the complex resettlement process for refugees, legal uncertainties for asylum-seekers, and inadequate protections for IDPs. These distinctions emphasize the diverse and complex nature of global displacement, highlighting the critical need for coordinated efforts and effective policies to support these vulnerable populations and enhance their safety and resilience.

Evacuation can significantly impact vulnerable populations, often amplifying existing challenges while introducing new ones. Health and mobility issues are particularly pronounced among the elderly and individuals with disabilities, who may struggle with evacuation due to mobility limitations and require specialized assistance and medical care, which can be difficult to provide during emergencies (FEMA, 2020). Economic hardship also arises, as low-income families may lack the financial resources to manage transportation, temporary housing, and lost wages, placing an additional strain on their limited means (Rodríguez & Donner, 2008).

Psychological stress is another critical issue, as the disruption caused by evacuation can lead to anxiety, trauma, and other mental health challenges, with children and those with pre-existing conditions being especially vulnerable (National Academies of Sciences, Engineering, and Medicine, 2021a). Language barriers and limited access to communication tools often prevent timely dissemination of evacuation orders and procedures to certain groups, resulting in confusion and delays (Rodríguez, Sáenz, & Menjívar, 2006). Additionally, evacuation disrupts social networks and support systems vital to the well-being of vulnerable populations, leaving individuals isolated and less equipped to cope with the aftermath of disasters (Enarson & Morrow, 1998). These factors highlight the need for tailored evacuation planning, that accounts for the unique needs of vulnerable communities.

Natural disasters such as hurricanes, floods, wildfires, and earthquakes are common reasons for evacuation, as these events can cause severe damage and threaten lives (FEMA, 2020). Similarly, human-caused disasters, including chemical spills, toxic gas releases, and radiological incidents, create hazardous environments that demand immediate evacuation. Structural fires also necessitate evacuation to protect individuals from smoke inhalation and burns, while civil disturbances, such as riots or large-scale violence, often lead to authorities ordering evacuations for public safety. Additionally, severe weather events, such as blizzards and heatwaves, and infrastructure failures, including dam breaches and power plant malfunctions, can compromise safety and lead to evacuation orders (OSHA, n.d.). War and conflict also force individuals to flee due to imminent danger, such as fighting or targeted violence based on ethnic, political, religious, or tribal affiliations. In all these scenarios, it is vital for households to have an evacuation plan that addresses specific risks, identifies when and where to go, outlines what to bring, and ensures access to reliable information. Promptly following evacuation orders significantly enhances personal safety and community resilience.

The most severe hazards in Utah are flooding, wildland fires, and earthquakes. While flooding and wildland fires occur annually and often require evacuation (Associated Press, 2024; FEMA Region 8, 2024), the potential for a major earthquake would cause the most damage to Utah infrastructure and danger to the population (Utah Geological Survey, n.d.; Utah Department of Public Safety, n.d.).

Kosovo and North Macedonia face similar hazards both human-caused and natural. Recent fires and floods have forced people to evacuate their homes (BBC News, 2016; Memeti & Georgievski, 2021; Baftiu & Tizard, 2023). Earthquakes have caused major structural damage,

loss of life, and forced evacuations (Marusic, 2013; Monitor staff, 2019). In both countries, war and ethnic conflict have caused people to flee their homes (Wagener, 2024; Walters, 2021; Marusic, 2021; Kondaj, 2002; Miller, 1999). For example, during the Kosovo war in 1998-1999, about 860,000 people fled Kosovo within nine weeks, traversing rugged terrain to cross into Albania, Macedonia, and Montenegro.

Preparedness

Preparedness data is not available for Kosovo and North Macedonia; however, in the United States, according to the 2023 National Household Survey on Disaster Preparedness, slightly more than half (51%) of Americans believe they are prepared for a disaster. Additionally, 57% of Americans took three or more actions to prepare for a disaster within the past year. The most common actions included assembling or updating disaster supplies (48%) and making a plan (37%), while the least common were planning with neighbors (12%) and getting involved in their community (14%). However, there is a distinction between believing one is prepared and actually being prepared. Two-thirds of Americans do not feel fully prepared for potential natural disasters, with many lacking key emergency preparedness items such as generators (73%), emergency evacuation kits (68%), and radios (45%). Therefore, while some individuals are taking steps to prepare for disasters, a significant portion of the population may not know what to do in the event of a disaster requiring evacuation (FEMA, 2024).

In the Western Balkans, countries rely on international assistance from the United Nations, the International Red Cross, and/or European Union to respond to large disasters (United Nations Kosovo Team, 2023; UNDRR, 2015, 2023; European Civil Protection, n.d.). The United Nations, through the Sendai Framework promises to protect populations and

infrastructure of member states from disasters (UNDRR, 2015, 2023). While the framework serves as guidance for developing countries, it lacks detailed implementation solutions because of so many varying country needs (Nekoei-Moghadam et al., 2024). Because Kosovo is not a member of the United Nations, any assistance it gets is outside the framework.

The World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) have commissioned reports to assess emergency preparedness and response (EP&R) in Kosovo, North Macedonia, and other Western Balkan nations, including Albania, Bosnia and Herzegovina, and Montenegro. Using the Ready2Respond (R2R) diagnostic methodology, these assessments evaluate five components: legal and institutional frameworks, information, facilities, equipment, and personnel. The legal and institutional framework ensures that laws, regulations, and organizational structures are robust and clearly defined to support disaster management efforts. The information component assesses the systems for data collection, analysis, and dissemination to ensure reliable and timely decision-making. Facilities are evaluated for their adequacy and accessibility, including emergency operation centers, shelters, and medical facilities. The equipment component examines the availability and condition of essential tools such as communication devices, rescue equipment, and medical supplies. Finally, the personnel component evaluates the training, capacity, and readiness of emergency responders to ensure they are well-prepared to execute plans and protect public safety effectively (Global Facility for Disaster Reduction and Recovery [GFDRR], 2017).

The report on Kosovo reveals that while its EP&R system for small-scale incidents is functional, it lacks many elements of a mature system and requires significant investment, particularly in redefining national-local relationships and building overall capacity. Kosovo

scored 174 out of 360, with weaknesses in information and legal and institutional accountabilities but strengths in facilities, equipment, and personnel. The system is primarily response-oriented with limited capacity to address challenges such as climate change and pandemics. The report recommends focusing on fundamental EP&R components before making hazard-specific investments (World Bank – Kosovo, 2021).

The report on North Macedonia shows an overall score of 165 out of 360, with high scores in emergency social services, information and communications technology, exercises and drills, and legislated accountability, but low scores in information management systems and training centers. North Macedonia's EP&R system meets basic requirements but has significant room for improvement. Key challenges include overlapping responsibilities among multiple EP&R actors, leading to inefficiencies. To enhance coherence and efficiency, the report suggests adopting a long-term strategic vision and moving towards a more organized and integrated approach. Recommendations include focusing on fundamental EP&R components, upgrading equipment, building capacity, and enhancing technology to prepare for major risks like floods and wildfires, as well as new challenges such as climate change, migration, pandemics, and increasing tourism (World Bank – North Macedonia, 2021).

In North Macedonia, the Protection and Rescue Directorate is the primary body responsible for emergency management. Their duties include organizing a unified system for tracking, preventing, and mitigating consequences caused by natural disasters or other emergencies. They participate in protection and rescue activities in case of disasters and major accidents as regulated by the Protection and Rescue Law. Additionally, they manage risk assessments and planning for all risks and hazards at both local and national levels, operating

the Crisis Management Center, which continuously monitors and assesses security risks and dangers. The Directorate also conducts training and exercises for response units, institutions, and private companies, and operates the State Operations Centre within the Crisis Management Centre, providing early warning and communication 24/7 (European Commission, n.d.).

The department responsible for emergency management in Kosovo is the Emergency Management Agency (EMA). Their responsibilities include drafting and approving the Integrated Emergency System and the National Response Plan, as well as conducting risk assessments. Additionally, the EMA is tasked with preparing and training emergency services, organizing the monitoring, notification, and warning system, and managing communication systems. They also direct and coordinate preventive measures. The EMA supports citizens and first responders to ensure a unified approach in preparing for, protecting against, responding to, and recovering from all potential hazards, whether natural or human-caused. The agency operates with a mission to develop, maintain, and advance capacity in these critical areas (European Committee for the Regions, n.d.; Kosovo Emergency Management Agency, 2024).

The attitude toward disaster recovery in the United States is encapsulated in the phrase "All disasters are local" (Pittman, 2011). This phrase underscores the idea that disasters primarily impact the local community, which is also the first to respond (FEMA, 2003). It emphasizes the importance of resilience, readiness, and swift action at the local level before extensive government aid is available, reinforcing that the local community's ability to respond quickly is crucial for effective disaster management. Local communities are the first line of defense in emergencies and disasters, responsible for alerting and warning citizens, conducting

rescue operations, providing immediate aid, maintaining public order and security, and restoring essential services like water, power, and medical care. They also coordinate with voluntary agencies to assist individuals and families. This describes what FEMA calls the Whole Community Approach.

The Whole Community Approach, developed by FEMA, is a comprehensive strategy that integrates all segments of society into emergency management efforts, recognizing that effective disaster preparedness, response, recovery, and mitigation require the involvement of the entire community, not just government agencies (FEMA, 2011, December). This approach is grounded in three key principles: understanding and meeting the diverse needs of all community members, including vulnerable populations, to ensure inclusivity; engaging and empowering individuals, families, businesses, faith-based and community organizations, and other stakeholders to leverage their strengths and resources; and strengthening existing community networks and resources that function effectively in daily life to enhance emergency response capacity (FEMA, 2011, December). Strategies for implementation include building partnerships with stakeholders, involving community members in planning processes to ensure plans reflect local needs, and conducting public education and outreach programs to raise awareness and encourage participation (FEMA, 2011, December). This inclusive and collaborative approach enhances community resilience and ensures that emergency management efforts are more effective and sustainable.

State governments support local governments by providing additional resources and serving as intermediaries for federal assistance. They collaborate with FEMA to access federal programs and support local jurisdictions. Both local communities and state governments are

integral to disaster response, implementing emergency operations plans, delivering essential services, and coordinating recovery efforts to mitigate the impact of disasters on affected populations (FEMA, 2003).

Only upon a National Disaster Declaration does the Federal Emergency Management Agency (FEMA) provide assistance (FEMA, 2023, April). As an agency of the United States Department of Homeland Security, FEMA plays a vital role in disaster response and recovery, offering support to affected communities (FEMA, 2023, July). Additionally, it aids citizens and emergency personnel in preparing for, protecting against, responding to, recovering from, and mitigating all hazards.

Evacuation preparedness focuses on ensuring the safe and efficient relocation of individuals from hazardous areas to secure locations during emergencies. The Federal Emergency Management Agency (FEMA) emphasizes the importance of planning ahead to save lives and provides several recommendations to enhance readiness. These include assembling a "Go Bag" or disaster survival kit with essential items such as important documents, prescriptions, a first aid kit, bottled water, a flashlight, a battery-powered radio with extra batteries, clothing, bedding, and special equipment for vulnerable family members, such as infants, the elderly, or those with disabilities. Additionally, supplies for pets should also be included (FEMA, 2011, September). Evacuation preparedness further involves planning evacuation routes, identifying shelters, and coordinating transportation resources to ensure the process is as smooth and efficient as possible (FEMA, 2020). Clear and timely communication of evacuation orders through multiple channels, particularly to vulnerable populations, is also a key component of this strategy (Bexar County, TX, n.d.).

In contrast to evacuation preparedness, general hazard preparedness adopts a broader focus, addressing a wide range of emergencies through activities such as risk assessment, mitigation strategies, and stockpiling supplies. General preparedness aims to reduce the overall impact of disasters by equipping individuals and communities with tools like emergency kits, communication plans, and regular drills that can be applied across multiple scenarios (Paredes, 2024). Unlike evacuation preparedness, which requires coordination with authorities and shelter providers for specific events, general preparedness emphasizes ongoing public education and community awareness about hazards. Resource allocation in general preparedness focuses on securing essential items like food, water, and medical supplies, which are critical for sustaining life during extended emergencies (FEMA, 2020; Paredes, 2024). While both types of preparedness share common elements, they differ in their scope and application, with evacuation preparedness addressing immediate life-saving actions and general preparedness promoting long-term resilience.

Resilience

Community disaster resilience is a multifaceted concept rooted in social-ecological resilience literature, emphasizing governance, social organization, and infrastructure as critical components of disaster preparedness and recovery. Definitions of resilience, such as those from Norris et al., (2008), highlight adaptive capacities that lead to positive outcomes after disturbances. Social capital, encompassing networks, norms, and social trust, is vital in this context. High levels of social capital foster robust community bonds, enabling collective action, resource sharing, and effective recovery during emergencies (Norris et al., 2008). Socio-economic conditions also play a pivotal role, as economic development provides essential

resources, while collaboration within and across communities strengthens local resiliency efforts (Carmen et al., 2022). However, resilience thinking has faced criticism for overlooking pre-existing social inequalities that influence a community's ability to adapt and recover (Mayer, 2019).

Active community engagement further enhances resilience by involving members in disaster preparedness and response efforts. Engaged communities are better equipped to develop disaster plans, conduct regular drills, and educate members about risks and safety measures, ensuring swift and informed actions during crises (National Academies of Sciences, Engineering, and Medicine, 2021b). Self-reliance complements this by empowering individuals and communities to take responsibility for their safety through training in first aid, emergency response skills, and resource management. Communities that emphasize self-reliance are less dependent on external aid and more capable of sustaining themselves during disasters, contributing to overall resilience (Carmen et al., 2022). Leadership also plays a crucial role, as effective leaders provide direction, coordination, and motivation, ensuring that disaster response efforts are organized and efficient (Norris et al., 2008).

Resilience has increasingly become a cornerstone of environmental health and disaster risk reduction policies, such as the Sendai Framework, which integrates resilience into national and international efforts (Maini et al., 2017). Recent trends in measuring resilience emphasize the role of social capital in recovery and highlight the use of innovative methods, such as big data and social media, to assess resilience patterns. While these approaches have advanced resilience thinking, the challenge of standardized metrics remains (Mayer, 2019). Researchers

also stress the importance of subjective perceptions of recovery and resilience, advocating for methods that capture these dimensions alongside traditional indicators.

In conclusion, fostering community resilience requires integrating social capital, community engagement, self-reliance, and strong leadership into disaster preparedness strategies. Efforts must also address socio-economic inequalities to ensure equitable resilience outcomes. Theoretical and practical advancements, as highlighted by Mayer (2019), underscore the need for clarity and inclusivity in resilience applications, ultimately strengthening communities' ability to adapt, recover, and thrive in the face of disasters.

Methodology

The methodology includes the problem statement, research procedures, and limitations, providing a structured approach to exploring evacuation preparedness in Kosovo, North Macedonia, and Utah. This section outlines the study's focus on understanding individual and governmental responses, the research design, and the challenges encountered in conducting cross-regional comparisons.

Problem Statement

The research aimed to improve the understanding of evacuation scenarios and evaluate preparedness for such events. The study conducted a comparative analysis between the smaller nations of Kosovo and North Macedonia and the U.S. state of Utah. The study was guided by two central questions:

1. What conditions precipitate the need to evacuate?
2. How well-prepared are individuals when faced with the actual need to evacuate?

In addition, the researchers wanted to discover whether participants had prepared a disaster survival kit (also called a “go bag” or a 72-hour kit).

Procedure

The researchers aimed to explore individuals' experiences forced to leave their homes, governmental responses to evacuations and refugees, the readiness of government entities and populations for evacuations, and the disaster prevention benefits of such preparedness. They conducted face-to-face interviews with government officials, educators, students, and civilians in Kosovo, North Macedonia, and Utah.

Qualitative interviews helped the researchers understand how individuals connect emotions, motivations, and meaning to their disaster experiences (Benedict et al., 2023).

Researchers used two interview guides with separate sets of questions for interviews with government officials and workers and for interviews with the general public, former evacuees, and former refugees. Among the 27 interviewees were nine government officials and first responders and 18 evacuees from various disasters such as fires, earthquakes, and war. The researchers conducted the majority of interviews (24) in the Balkans, with three conducted in Utah. Transcripts from the interviews were summarized; 12 summaries are included in this report.

Determining an appropriate sample size for qualitative studies can be complex and depends on various factors such as the research design, the nature of the phenomenon being studied, and the goals of the research. Generally, qualitative research aims for depth of understanding rather than generalizability, which often means smaller sample sizes are sufficient. For instance, Morse (2000) suggests that the more useable data collected from each

participant, the fewer participants are needed. She recommends considering the scope of the study, the nature of the topic, and the quality of data when determining sample size. Guest, Bunce, and Johnson (2006) found that data saturation often occurs within the first 12 interviews, with basic elements for meta-themes present as early as six interviews. Creswell (2013) recommends 20-30 interviews for grounded theory studies and 5-25 for phenomenological studies.

In practice, a sample size of 15-20 participants is often cited as sufficient for many qualitative studies, particularly those involving interviews or focus groups (Vasileiou et al., 2018). However, the concept of data saturation—the point at which no new information or themes are observed in the data—is crucial in determining the final sample size (Malterud, Siersma, & Guassora, 2016). The results of this report are based on 12 interviews. Saturation was reached before completing all 12 interviews, as the information gathered became repetitive and redundant after that point.

Thematic analysis was used to analyze the transcripts, because it allows for flexibility in interpreting the data and can approach large data sets more easily by sorting them into broad themes (Ayton, 2023). Artificial Intelligence (AI) can significantly enhance the process of thematic analysis in qualitative research. ChatGPT was employed to generate themes, saving researchers a considerable amount of time and effort. Although AI managed many aspects of thematic analysis, it was crucial for the researchers to critically evaluate AI-generated results to ensure their accuracy and reliability (Sinha et al., 2024).

In qualitative research, validity and reliability are referred to as trustworthiness and rigor, focusing on credibility, transferability, dependability, and confirmability. Unlike

quantitative studies, qualitative research does not prioritize generalizability but instead aims to provide deep, context-specific insights (Lincoln & Guba, 1985). Credibility ensures findings are believable to participants, using prolonged engagement, persistent observation, and member checking (Noble & Smith, 2015). Transferability allows findings to be applied to similar contexts by offering thick descriptions of the research setting and participants (Lincoln & Guba, 1985). Dependability is achieved through an audit trail, ensuring that the research process is transparent and replicable (Creswell, 2000). Confirmability mitigates researcher bias by using reflexivity to ensure findings are driven by participants' perspectives (Noble & Smith, 2015).

Rigor is maintained through consistency, achieved via detailed research protocols and decision trails (Noble & Smith, 2015). Triangulation strengthens findings by cross-verifying them with multiple data sources, methods, or researchers (Lincoln & Guba, 1985). Reflexivity, central to trustworthiness, involves researchers continuously examining their role and biases throughout the study (Creswell, 2000). The researchers aimed to achieve the highest level of trustworthiness and rigor throughout the study.

Student researchers, Mary Bennett and Jordan Newman, remained in Kosovo and North Macedonia after the 2022 UVU study abroad program to investigate evacuation preparedness. With the help of Zijavere Keqmezi-Rexhepi and Dr. Muhaedin Bela, they arranged contacts, translations, transportation, and accommodation. Before the study abroad, they collaborated with Professor John Fisher to draft a problem statement, review relevant literature, establish a methodology, and develop interview questions and a consent form. The research proposal received IRB approval from both UVU and authorities in Kosovo (Bennett, 2023).

Limitations

This qualitative study prioritizes trustworthiness and rigor over generalizability, with findings transferable only to similar contexts. The research emphasized confirmability, ensuring that results accurately reflected participants' viewpoints rather than researchers' biases. Triangulation was employed through the use of multiple data sources and cross-checking participant responses to validate the findings. Data were collected from 27 participants, including government officials, first responders, and community members. Of these, 12 interviews were selected for inclusion in the report as they provided unique and diverse perspectives and effectively summarized the key insights from all interviews. Participants were selected based on their experiences with evacuations; in Kosovo, this predominantly involved evacuees who had fled their homes due to war and ethnic conflict rather than natural disasters. Representation from all three participant groups was ensured in both regions. Data collection concluded upon reaching saturation, when responses became repetitive and no new themes emerged.

Legal and Regulatory Structures

Historical, legal, and regulatory differences between Kosovo and North Macedonia, and Utah significantly influenced participant responses and their understanding of disaster preparedness and evacuation procedures. These structural disparities complicate direct comparisons. In the Balkans, emergency response is centralized and state-controlled (Kosovo Emergency Management Agency, 2024; European Committee of the Regions, n.d.), whereas in Utah, disaster response is locally managed and guided by FEMA's Whole Community approach and responder training and adherence to standard operating procedures (FEMA, 2011, 2003). The

Balkans adopt a more structured and fixed approach, with government teams managing national disasters, while Utah employs a more flexible and adaptive system, where local responders coordinate efforts. State and federal assistance in Utah is sought only when disasters exceed local capacities or cross jurisdictions. Utahns tend to have a more individualistic attitude, emphasizing self-reliance rather than dependence on government assistance. This cultural emphasis on public participation and preparedness further fosters community resilience. Evacuations in Utah are typically voluntary and locally directed, whereas in the Balkans, recent evacuations have been centrally mandated.

Disaster types also differ. Both regions face natural hazards like earthquakes, flooding, and wildfires, but the Balkans' history of civil unrest and war, rooted in the breakup of Yugoslavia and ethnic and religious tensions, shapes participants' perspectives and responses. The interview results are reported in Findings.

Findings

The interview transcripts were summarized, ensuring individual privacy by omitting identifying details such as names, affiliations, or precise locations. This report presents a collection of interview summaries from respondents in Kosovo, North Macedonia, and Utah, labeled R1 to R12 (Respondent 1 to 12). The interviews aim to explore various perspectives on emergency preparedness, focusing on the awareness and implementation of evacuation kits. Interviews 1 to 9 were conducted in the Balkans, and interviews 10 to 12 took place in Utah. Instead of complete transcripts, concise summaries of each interview are provided to highlight the key insights and experiences shared by the respondents.

Interview summaries from Kosovo and North Macedonia

Nine interviews from North Macedonia and Kosovo were selected because they best represented the diversity of views and effectively summarized the key points discussed.

R1. A professor of public safety expressed unfamiliarity with the concept of emergency evacuation kits. He noted that such preparedness measures are not discussed or taught in Kosovar society.

R2. A family in Northern Macedonia, shared experiences from the 2001 Civil War. Despite past adversities, they showed reluctance towards preparing evacuation kits, deeming them unnecessary and impractical.

R3. A mayor in North Macedonia discussed emergency preparedness in the context of limited resources. While acknowledging the importance of readiness, he prioritized securing firefighting equipment and addressing food distribution concerns over creating evacuation kits.

R4. A member of the city youth council dismissed the idea of evacuation kits as unnecessary, echoing sentiments of the council's youth who showed disinterest in the concept.

R5. A captain from a Fire Station in Kosovo expressed the need to educate the community on emergency preparedness, inspired by research into FEMA systems. Despite facing challenges with funding and community perception, he highlighted the importance of readiness and mentioned having his own family's evacuation kits prepared.

R6. A group in Kosovo, including firefighters, government officials, and Kosovo War veterans recounted past experiences of war and disasters, emphasizing the lack of preparedness among citizens. Despite harrowing events like the 2002 earthquake in Gijlan, Kosovo, which left many homeless and hungry, there were no organized supply caches for

civilians. The group expressed concerns about potential future conflicts, fearing a resurgence of ethnic cleansing supported by Russia. One Fire Chief acknowledged personal preparedness with FEMA-inspired supplies but believed that citizens couldn't afford such measures.

R7. In a meeting in Kosovo of a deputy mayor, council members, and teachers, they discussed the challenges of living in an isolated village prone to natural disasters. Recalling traumatic experiences from the Kosovo War, they emphasized the importance of community resilience and expressed fears of future conflicts. The deputy mayor committed to sharing preparedness strategies, including evacuation kits, with his village.

R8. Members of a church in Pristina shared their wartime experiences and highlighted the need for evacuation preparedness. Despite cultural and financial obstacles, they emphasized the importance of such measures.

R9. A public safety director reflected on the lack of preparedness during the Kosovo War and expressed gratitude for international aid, particularly from the United States and the United Nations High Commissioner for Refugees (UNHCR).

Utah Interviews

In Utah, interviews with three individuals shed light on the importance of emergency preparedness and effective evacuation strategies.

R10. A homeowner spoke from her personal experience about the transformative impact of a home fire incident. This event underscored the critical need for personal preparedness, as she and her family found themselves reliant on community support amidst the chaos of the evacuation.

R11. Meanwhile, a Public Information Officer and Emergency Manager for a small city, shared insights from the Bald Mountain Fire and Pole Creek Fire evacuations in August 2018, located just 15 miles south of Provo, Utah. She emphasized the crucial role of community involvement, effective communication, and collaboration with various organizations in ensuring successful evacuations. Additionally, she highlighted the challenges faced by cities in accessing FEMA funding and stressed the significance of local preparedness efforts in mitigating the impact of disasters.

R12. In a separate interview, a retired Fire Chief from Lehi, Utah, voiced concerns about the overall lack of preparedness among citizens in the community. This individual emphasized the necessity of whole-community readiness, pointing out the potential vulnerabilities that arise from a lack of preparedness. Their perspective underscored the importance of proactive measures to ensure that communities are adequately equipped to handle emergencies and disasters effectively.

In summary, the interviews from Kosovo, North Macedonia, and Utah reveal significant differences in emergency preparedness and viewpoints about the impact of disasters. Themes identified from the transcripts and insights from the interviews will be explored in the Discussion section.

Discussion

Two sets of themes were developed from the transcripts using AI: one from the Balkan interviews and the other from the Utah interviews. The AI-assisted thematic analysis provided an efficient way to identify patterns and recurring ideas within the vast amount of qualitative data. Each set of themes was critically examined to ensure they accurately reflected the

content and meaning of the interviewees' responses. This rigorous examination involved cross-referencing the themes with the original transcripts to verify their validity and reliability.

The themes from the Balkan interviews highlighted issues such as limited resources, cultural attitudes towards preparedness, and the historical impact of past conflicts on current preparedness levels. In contrast, the themes from the Utah interviews emphasized the importance of community involvement, proactive measures, and effective communication in emergency preparedness.

By comparing these themes, the analysis will reveal significant differences and commonalities between the two regions. These comparisons will help to draw conclusions about the varying levels of preparedness, the influence of socio-economic factors, and the effectiveness of different strategies. The conclusions developed from this comparative analysis offer valuable insights into how different communities approach emergency preparedness and highlight areas where improvements can be made.

Themes from Interviews in Kosovo and North Macedonia

Based on the transcripts, six themes emerge from the interviews of government officials, educators, and individuals:

Historical Trauma and Resilience

The interviewees frequently recall past traumatic events, particularly those related to war. Historical trauma, defined as the collective emotional and psychological effects of such significant events, often shapes behaviors and mental health across generations. Despite these enduring challenges, the community exhibits a strong sense of resilience, drawing strength from shared experiences to adapt, recover, and face future adversities.

Perceived Lack of Preparedness

Many citizens and communities perceive preparedness as unattainable, often due to factors such as limited resources and cultural beliefs. For instance, some cultural norms emphasize reliance on divine intervention or fate, with the belief that "God will take care of them" and that adverse events are simply "God's will." This perspective often extends to a reliance on government intervention during emergencies, leading to a reduced sense of responsibility for individual or community preparedness.

Government and Institutional Challenges

Government officials and institutions face challenges in addressing emergency preparedness effectively. These challenges include limited resources, bureaucratic hurdles, and competing priorities.

Community Engagement and Leadership

Despite the obstacles, there are instances of community leaders taking proactive steps to promote preparedness. Their efforts often involve education, advocacy, and the dissemination of information about emergency preparedness measures.

External Support and Gratitude

There's acknowledgment of the importance of external support, particularly from international organizations and allies, in times of crisis. Gratitude is expressed for past assistance while also recognizing the ongoing need for collaboration and support.

Cultural and Socioeconomic Factors

Cultural attitudes and socioeconomic factors influence attitudes towards emergency preparedness. These factors can contribute to barriers in adopting preparedness measures, such as evacuation kits, despite recognition of their importance.

Overall, the themes highlight the complex interplay of historical, institutional, cultural, and socioeconomic factors in shaping attitudes and practices related to emergency preparedness in the context of past experiences and future uncertainties.

Themes from Interviews in Utah

Five themes emerged from the transcripts of the three persons interviewed in Utah.

Personal Experience and Preparedness

Personal experiences with disasters significantly influence individuals' preparedness. One individual became committed to being prepared for evacuations after a traumatic fire incident in 1986, which highlighted their lack of readiness and the importance of having essential items gathered into kits. This experience led them to always keep an evacuation kit ready.

Community and Organizational Role in Preparedness

Community involvement and organizational support are crucial in managing evacuations effectively. The public information officer and emergency manager emphasized the importance of knowing the residents and integrating community resources, such as ecclesiastical organizations, the Red Cross, and volunteers, into emergency plans. The successful evacuation during the Bald Mountain and Pole Creek fires was attributed to community preparedness and the trust built through consistent communication.

Gaps in Disaster Response Funding and Recovery

Delays in federal funding and budget constraints challenge effective disaster recovery. The public information officer expressed frustration over the delay in FEMA funding, which can take 2-3 years to arrive, impacting the recovery process. They also highlighted the limited capacity of city budgets to maintain adequate rainy-day funds for immediate disaster response.

Importance of Whole Community Preparedness

A whole community approach is essential for effective disaster response and recovery. The retired fire chief emphasized that whole community preparedness is critical, as a lack of citizen preparedness increases vulnerability and the potential for secondary disasters. They stressed that there are not enough resources to address all needs during a disaster, making community-wide readiness vital.

Training and Communication

Regular training and effective communication build trust and compliance during evacuations. The effective evacuation during the fires was due to prior training drills, the use of an emergency alert system, and the establishment of a command center and joint information center. Consistent communication through social media and other channels developed trust, leading to greater compliance with evacuation orders.

Comparative Analysis of Themes in Balkans and Utah Interviewees

In the interviews conducted in Kosovo and North Macedonia, the themes highlight the impact of historical trauma on resilience. Communities in these countries in the Balkans, having endured wars and natural disasters, exhibit a profound sense of resilience despite facing significant hardships. These experiences have underscored a perceived lack of preparedness,

often attributed to limited resources and cultural attitudes that hinder proactive disaster readiness. This contrasts with the themes from Utah, where personal experiences with disasters, such as a traumatic fire incident, play a significant role in influencing individual preparedness. In Utah, such experiences have led individuals to adopt proactive measures like maintaining evacuation kits, demonstrating how direct encounters with disasters can drive personal readiness.

Socio-economic conditions play a crucial role in shaping community resilience (Carmen et al., 2022). Government and institutional challenges are prevalent in the Balkans, where officials grapple with limited resources, bureaucratic hurdles, and competing priorities that impede effective emergency preparedness. This scenario highlights the socio-economic constraints that exacerbate these challenges. In contrast, Utah faces issues related to delays in federal funding and budget constraints, which frustrate disaster recovery efforts. The public information officer in Utah expressed particular frustration over the slow arrival of FEMA funding, which can take years to materialize, thereby impacting the recovery process. While structures in place in the United States appear to be superior to those in the Balkans, problems still exist. Even with a National Disaster Declaration (FEMA, 2023, April 25), the federal response appears to be slow in many cases. Additionally, limited city budgets further constrain immediate disaster response capabilities. These themes underscore the differences in how socio-economic factors influence institutional preparedness and the ability to implement efficient recovery mechanisms.

Cultural and socioeconomic factors significantly influence attitudes towards emergency preparedness in the Balkans. These factors create barriers to adopting necessary preparedness

measures, such as maintaining evacuation kits, despite recognizing their importance. R3, a mayor in North Macedonia, believed that firefighting equipment and food distribution were more crucial than emergency kits. However, assembling "go bags" could be a symbolic action for citizens and families that enhances community resilience.

Conversely, in Utah, regular training and effective communication are emphasized as crucial for building trust and compliance during evacuations. The use of emergency alert systems, the establishment of command centers, and joint information centers, along with consistent communication through social media, illustrate how proactive training and clear communication strategies can enhance preparedness and foster community resilience. While preparedness data is not available for the Balkan countries, it appears that Utah citizens are better prepared, even though two-thirds of Americans don't feel totally prepared for disasters (FEMA, 2024, January 9).

Community engagement, leadership, social capital, and self-reliance are foundational to disaster preparedness in both the Balkans and Utah, shaping their distinct approaches to resilience. In the Balkans, where resources are scarce and governmental support is limited, community leaders often take proactive steps to foster preparedness through education, advocacy, and the dissemination of emergency information. These efforts build social capital by enhancing trust and collaboration among community members, enabling collective action during crises (Norris et al., 2008). In Utah, strong community engagement and leadership are reflected in the integration of local resources into emergency plans, which proved vital during the successful evacuations for the Bald Mountain and Pole Creek fires. These efforts, coupled with consistent communication and trust-building, underscore how leadership and social

networks are pivotal for effective disaster response and recovery (FEMA, 2003). Both contexts illustrate that disasters impact communities locally and that solutions must be rooted in local collaboration and leadership.

The importance of external support and the concept of whole community preparedness also emerged as significant themes. In the Balkans, limited internal resources necessitate reliance on international support from organizations and allies, which remains crucial for addressing immediate needs and building long-term capacity. However, fostering self-reliance through community-led initiatives and training programs could reduce dependency and enhance resilience over time (Carmen et al., 2022). Conversely, Utah benefits from socio-economic stability that allows for a whole community approach, emphasizing the active participation of all members, from individuals to organizations, in disaster preparedness. This approach leverages social capital and proactive engagement to mitigate risks and prevent secondary disasters, demonstrating the power of internally driven efforts to build sustainable resilience (National Academies of Sciences, Engineering, and Medicine, 2021).

Overall, the comparative analysis of interview themes highlights the critical influence of socio-economic factors, social capital, and leadership on preparedness and resilience. The Balkans' limited resources and historical trauma underscore the necessity of external support and community-led strategies, while Utah's stronger resources facilitate structured organizational support and efficient recovery mechanisms. Both regions exemplify resilience, yet their unique socio-economic contexts shape their distinct paths to achieving preparedness, with community engagement, leadership, and self-reliance playing pivotal roles in overcoming challenges and enhancing disaster response.

Discussion Summary

The discussion reveals significant differences in emergency preparedness between the Balkans and Utah. Historical trauma and limited resources in the Balkans hinder proactive disaster readiness, necessitating external support and community-led initiatives. In contrast, Utah emphasizes community involvement, proactive measures, and effective communication, despite challenges like delayed federal funding. Socio-economic factors heavily influence preparedness and resilience in both regions. Overall, while both demonstrate resilience, their approaches to preparedness are shaped by their unique socio-economic contexts.

Recommendations

Both the United States and Balkan countries can enhance resilience by emphasizing self-reliance and leveraging internal resources, such as local skills, trained personnel, and community networks. Streamlining disaster aid processes remains important, but the focus should shift toward developing policies that encourage community-driven solutions and proactive preparedness measures. Resource-limited areas, like the Balkans, should prioritize building local capacity through education, training, and the mobilization of community resources rather than over-relying on international funding. International support can still play a role by facilitating knowledge-sharing, training programs, and resource exchanges, but these efforts should aim to empower communities to lead their own preparedness initiatives.

Educators are instrumental in fostering a culture of preparedness by integrating emergency readiness and resilience education into school curricula and community programs. These initiatives should emphasize practical skills, such as creating home storage plans and preparing evacuation kits, while also teaching the importance of self-reliance. Partnerships with

local organizations can support ongoing education efforts, while international cooperation, including student exchanges and collaborative training programs, should focus on capacity-building. For instance, educators and students can facilitate resource sharing, such as refurbished equipment, to support local emergency response systems in developing regions.

Future research could explore the long-term impact of preparedness education on community resilience and evaluate the effectiveness of integrating practical skills like evacuation planning into school curricula. Comparative studies examining how localized education efforts differ across regions with varying socio-economic contexts could provide valuable insights. Additionally, further investigation into the role of international cooperation in building local capacity and the effectiveness of resource-sharing initiatives, such as refurbished equipment programs, would help refine strategies for enhancing community preparedness globally.

Citizens hold the primary responsibility for their own preparedness in both the Balkans and the United States. Engaging in local preparedness programs, staying informed about risks and procedures, and participating in regular drills are essential steps toward readiness. Communities should also strengthen internal support networks, encouraging individuals to work together and rely on local resources in times of need. By cultivating self-reliance and proactive readiness, communities can become more resilient and better equipped to face emergencies independently.

Conclusion

This study emphasizes the critical role of self-reliant communities in achieving resilience, highlighting significant differences in emergency preparedness between the Balkans and Utah.

In the Balkans, historical trauma and limited resources often impede proactive disaster readiness, underscoring the need for community-led initiatives that prioritize self-reliance over dependency on external support. In contrast, Utah demonstrates how better resource allocation, community involvement, and proactive preparedness measures, including evacuation preparedness, can foster resilience. While Utah faces challenges like delayed federal funding, its focus on leveraging local resources and cultivating a culture of preparedness strengthens its ability to respond to disasters. These findings illustrate that resilience is best achieved when communities not only prepare for general emergencies but also develop robust evacuation plans. Future research could incorporate quantitative methods with broader and more diverse samples to validate these conclusions and further explore strategies for building self-sufficient, resilient communities.

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John R. Fisher is a professor in the Department of Emergency Services at Utah Valley University. Before coming to UVU, he taught management and communications at Northwest Missouri State University, Boise State University, Athabasca University, and the University of Alberta. He has a BA and an MA from Brigham Young University and a PhD from the University of Alberta. His principal areas of research are mass media coverage of disaster public policy, disaster preparedness and community resilience, and applied learning online for adult learners.

Social Identity Theory in Fire Departments

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Abstract

Emergency response organizations operate in an increasingly complex environment and could benefit from further understanding of culture. While there is not a single measure of culture, Social Identity Theory (SIT) examines the effect of group informed identities on individual perceptions and group participation. The purpose of this study was to explore SIT as it relates to fire departments in the United States. A survey was shared with responders; a total of 397 responses were collected and analyzed. Social identification and groupness scores were relatively high (Mean = 5.40 on a scale of 1-7; Mean = 7.29 on a scale of 1-9). There were effects on social identification based upon gender and leadership status. Results from this study have implications on performance, diversity, leadership development and selection, and recruitment and retention. The results promote the continued comparison between athletics and emergency response, and the expanded use of social identification in emergency response organizations.

Key Words: Social identity theory, social identification, groupness, fire department

Introduction

Organizational culture has been the topic of focus in many disciplines, including business and the corporate environment, sports organizations, and government structures (Scott, 2014, 2022). It has been recognized that organizations are not only themselves a culture, but also the building blocks of modern society (Haveman & Wetts, 2019b; Slack & Parent, 2006). Scott (1997) noted that culture has importance in such organizations for different underlying causes – for businesses it is often the net profit equation, and for athletic organizations it is often the performance of the team or the number and breadth of the fanbase. For government organizations the study of culture might be for different purposes, with even more importance when these organizations are public safety and emergency response organizations. Perhaps there is even a human reason that culture matters – in how people express exposures and promote health and well-being, in how people find belonging, and how people associate and affiliate (Nicholas, 2021).

There appears to be reason to study organizational culture, the aspects that contribute to organizational culture, and the implications of organizational culture. Daniel Coyle (2018, p. xviii) stated that "(g)roup culture is one of the most powerful forces on the planet." Research has been conducted on the effect of employee turnover on organizations and the importance of organization stability (Scott, 1997; Van Dick et al., 2004; van Knippenberg & Sleebos, 2006). Organizations with low turnover, and therefore more stability, are generally more capable of managing a complex environment (Scott, 1997).

Indeed, it appears that emergency response organizations operate in an increasingly complex environment and could benefit from further understanding of organizational culture

and stability as mentioned previously. For example, in 2019 United States fire departments responded to an estimated 37,272,000 calls for assistance, over three times the number recorded in 1980 (Ahrens & Evarts, 2021; Fahy et al., 2021). During 2019, reports estimated the number of fire related calls had been cut in half, most of the growth being attributed to calls related to medical or other non-fire assistance. The National Fire Protection Association (Fahy et al., 2021) reported that there are approximately 29,500 fire departments in the United States to combat that number of incidents; nine percent consist of all career responders and 65 percent are all volunteer, the remainder are a mix of career and volunteer in some proportion, called combination departments. The National Fire Protection Association (Fahy et al., 2021) also reported that there were approximately 1,080,800 firefighters in the United States in 2019, close to 75 percent of which were volunteers. The report furthered that close to two thirds of the nation's fire departments are all-risk in nature and provide emergency medical response at some level. Considering that organizations are comprised of people, research has been conducted to determine social aspects such as job satisfaction, motivation, and employee well-being (Harris & Cameron, 2005; Swanson & Kent, 2015). As such, recruitment and retention rise to the top as issues of concern in modern organizations including emergency response organizations (International Association of Fire Chiefs, n.d.; International Association of Firefighters, n.d.; U.S. Fire Administration, 2020).

Whether career or volunteer, whether responding to fire or medical related calls, it seems likely that public expectations are the same - competent response. However, expectations also include: to be role models and mentors, guiding at-risk populations, and being community leaders. Perhaps, even more so than other allied disciplines, the public looks

to members of a fire department to provide a beneficial and impactful leadership role within the community (Pertz, n.d.) This expectation might increase the significance of firefighter culture and its impact outside of formal organizations, and the importance of leadership within.

Despite changes in statistics and the communities served by all-risk response departments, the fire department culture appears to remain somewhat traditional in nature. Indeed, tradition is often seen as more significant in these organizations than progress and change (Morse, 2012). Diversity in the workforce is frequently a topic of discussion in the discipline, and perhaps rightfully so - 92 percent of career firefighters are male and 82 percent are white, compared interestingly to 95 percent and 60 percent respectively in the military, and 88 percent and 73 percent in law enforcement (Bendersky, 2018). This report furthers that to promote diversity fire departments will need to truly understand the nature of the work, understand the actual diversity and culture of the workforce, and create a new model with which leaders can lead.

The International Association of Fire Chiefs (n.d., p. 5) note in the "Guide for Creating a Diverse and Inclusive Department" that:

> *Diversity* addresses the many ways in which people differ. *Inclusion* speaks to the extent to which people feel welcomed, respected, trusted, treated fairly, and valued…. (W)e define diversity very broadly, including every possible element on which people differ. In addition to the traits and characteristics we normally associate with diversity (e.g., race, ethnicity, gender, sexual orientation, age, religious beliefs), here are others that are relevant to the fire-rescue service: talents, skills, and competencies, especially those not related to firefighting or EMS; perspectives; leadership and management styles;

parenthood status; language(s) spoken; type of membership; values; personal and career goals; communication preferences; interests and hobbies; physical and mental abilities; learning style preferences; educational level; legal status; positions or roles held; socioeconomic status; cultural norms; types of experience; family responsibilities; availability; and types of stakeholders.

From the above, diversity (with its many facets) and inclusion appear to be important for ensuring a modern organization that can respond to changing community needs. Specific benefits noted in this report include richer and deeper decision-making and relationships that promote buy-in, better recruitment and retention, higher morale and commitment, and lower burn-out rates (International Association of Fire Chiefs, n.d.). This report suggests that high functioning departments are those in which members value each other, understand what unites them, and regularly visit department culture. This is a sentiment shared by other fire response partners (International Association of Firefighters, n.d.; National Volunteer Fire Council, 2018).

There are like disciplines in which the realization of the need for cultural change and the recognition of the importance of social dynamics has been prevalent. For example, in an influential work in law enforcement, van Maanan (1973) noted that occupational stereotyping is a norm, and that most consider law enforcement to be a homogeneous group, which it is not. There are likely certain attributes that tend to be shared amongst full occupation groups such as firefighters and officers. But this research noted that in so stereotyping groups such as police officers in this study, one is enabled to do several things: allow police officers to define themselves as different than the public, consider police officers as outsiders and as such assign

them derogatory subculture attributes, and enforce the socializing behavior of in-group formation. In this study it was recognized that such homogeneous definitions force those interested to work deeper into a group to investigate subcultures and subgroups to really recognize what drives organizational culture. Similar to law enforcement, groups and organizational culture have been studied thoroughly in sports (Eklund & Tenenbaum, 2014; Gundlach et al., 2006; Kuo & Hou, 2017; Martin et al., 2013; Martyn et al., 2019; Sanderson, 2013; Smith et al., 2018; Whigham, 2014).

The group definitions and diversity that firefighters and fire departments operate within suggest that it is a complex cultural environment. In this environment it might be surmised that culture is important – the lack of affiliation has been hypothesized to cause a trauma response, belonging promotes health and wellness, and culture can drive positive change (Nicholas, 2021). It would seem important to understand what drives group formation and compels others to follow to fully embrace diversity and promote organizational effectiveness. The statistics show that the operational complexity is perhaps increasing (Ahrens & Evarts, 2021; Fahy et al., 2021). Research in like professions suggests that it is time to look at what drives and defines members of fire departments. Such studies might help these organizations identify and prepare leaders, improve employee wellness and satisfaction, improve recruitment and retention, promote diversity, and increase stability in an uncertain future. Development and maintenance of a strong and positive organizational culture has proven to have an impact on diversity of organizations, the ability to operate as a team, recruitment and retention, and job satisfaction (Harris & Cameron, 2005; International Association of Fire Chiefs, n.d; Nicholas, 2021; Swanson & Kent, 2015).

Social identity might be considered the perception of oneness with any given group, and has components of individual identification and group identification – Social Identity Theory (SIT) examines the effect of group informed identities on individual perceptions and group participation (Tajfel, 1978). People tend to classify themselves and others into social categories based upon their personal and shared characteristics, and identify in-groups and out-groups based upon perceived and real similarities and differences (Ashforth & Mael, 1989; Tajfel, 1978; Tajfel & Turner, 1979). Formal and informal groups impact the organizations and those within them; this impact is often in the creation of organizational culture and a series of subcultures which help categorize what it feels like to work within the organization (Watkins, 2013). Despite the recognition of its importance to organizations, sociology and group dynamics remain a low focus topic in the fire service. This topic has already been a focus of other disciplines such as within sports organizations (Eklund & Tenenbaum, 2014; Gundlach et al., 2006; Kuo & Hou, 2017; Martin et al., 2016; Martyn et al., 2019; Sanderson, 2013; Smith et al., 2018; Smith & Whiteside, 2019; Whigham, 2014).

Study Rationale

There are seemingly related professional and cultural niches, which have focused on the importance of SIT and its effects. Some comparison has been made between firefighters and paramedics and athletes, and with response organizations and sports organizations (Gnacinski, 2013; Gnacinski et al., 2015; Matousek, 2016; Ries, 2017). Similarities might exist because the importance of teams is shared, the physical and psychological demands are similar, and the significance of practice and leadership are recognized in both areas (Matousek, 2016). There are similarities in physical and psychological demands between athletes and firefighters that

are noted, and integrated approaches similar to what has been used for sports organizations could potentially be applied to fire departments (Gnacinski et al., 2015). Sports researchers often use theoretical models to examine demands placed upon athletes – this theme could be applied to firefighting performance equally (Gnacinski, 2013). Similarly, the homeland security mechanism in the United States has evolved to focus on "'Relentless Resilience' for All Threats and Hazards" (United States Department of Homeland Security, 2019, p. 1), which would include fire departments and other emergency response organizations. There has been a focus on SIT in the homeland security environment which could be applied to the domestic response environment (Brannan, 2007).

In comparison to sports and homeland security, emergency service researchers and practitioners have paid little attention to the subject of SIT, and how it informs and affects leadership of organizations and groups (Brannan et al., 2014; Rees et al., 2015). The effects of group identification are well discussed – increased cohesion with the group or team, agreement with team goals, agreement with team members, and ultimately team success (Martin et al., 2017). There are reports that suggest that interdisciplinary research centers, for example those that focus on the concept of firefighters as tactical athletes, are finding results for complex problems such as the application of sociological frameworks to otherwise unapproached populations (Sefton & Games, 2017).

Based on the conceptual relationship of sport organizational culture, team dynamics, and SIT previously discussed, there seems to be a reason to use sports applications when studying fire departments. Similarities might be simple and obvious, such as both team members and members of a fire departments wear uniforms, both use special tools to

accomplish tasks, both wear protective clothing, and both have aspects of rehabilitation and actor replacement staging on the bench (Spell, 2015). However, similarities go beyond the obvious. Individual characteristics are important in both; one looks to have strength and dexterity, skill and coordination, accountability, a good attitude, ethical standards, a professional mindset despite pay status, and a willingness to do the work (Kerrigan, 2015; LeDuc, 2018; Matousek, 2016b; Spell, 2015).

Individuals come together to form a team, and aspects related to teamwork such as respect, collective strength and achievement, and skill and role based assignment are evident in both sports and response (Kerrigan, 2015; Matousek, 2016b; Spell, 2015). There appears to be an aspect of strategy that is shared between the disciplines – whether it be response strategy and tactics in fire departments or sports strategy and tactics on athletic teams. Success starts with training and practicing together; strategy and tactics are communicated by leadership and used to achieve measurable goals; when it is time to perform, every person has a role, but the best person for each role is the one who gets the assignment (Matousek, 2016b; Spell, 2015). Ultimately, everyone on the team must have the right mindset for the team to excel (Kerrigan, 2015). The final similarity is perhaps the most foundational; that is, group performance begins with leadership, leaders and followers all play a role, and middle leadership that is based upon achieving a reasonable span-of-control helps moderate strategy and tactics situationally (Matousek, 2016b; Spell, 2015).

Modern research on leadership has identified that leaders are often those that influence others by embracing shared values and processes as their own, and that effective leaders can transform individual action into group action (Hogg & van Knippenberg, 2003). Thus, there is a

link between organizational and individual characteristics, SIT, and leadership. The stronger the social identification is based on shared traits, the likelier it is that a leader will be recognized as an effective leader (Harris & Cameron, 2005; Huettermann et al., 2014; Steffens et al., 2014). Both informal and formal leaders have an impact on the culture of an organization, which brings into consideration the overall link between organizational culture, organizational leadership, and organizational performance (Chatman & Cha, 2003; Schein, 2004; Scott, 2014). Effective leaders direct individuals and motivate the group towards group goals; the stronger the leader engages in group orientation the stronger their base of effectiveness (Knippenberg & Hogg, 2003).

Group identification to some extent must match the degree to which an individual resembles the identified group characteristics (Hamilton, 2007). This concept has come to be known as prototypicality or groupness in the sport setting; the extent to which a team member perceives the team as a group influences their perception of membership importance (Martin et al., 2017), and ultimately can affect longevity and cohesion (Martin et al., 2017; Spink et al., 2010). Job satisfaction, organizational commitment and involvement, and motivation have all been found to stem from team and organizational identification in sports (Harris & Cameron, 2005; Swanson & Kent, 2015). Gnacinski et al. (2013) noted that firefighters are like athletes in that they experience a wide range of physical and emotional stressors on a regular basis; it can be assumed that social identification and its effects might be as significant in emergency response organizations as it is in sports organizations.

The studies of social identification, groupness, and leadership status in like disciplines appear to highlight its potential importance in the field of firefighting. The effects of social

identification on personal and organizational attributes seem to make these links worthy of study. The significance of effective leadership and service delivery in fire department emergency response appears to be as important as it is for other disciplines, but the effects of toxic leadership or ineffective service might be more significant. It can further be assumed that efforts to explore sociocultural and leadership aspects of any profession have value – more so in those organizations and disciplines which have lacked such attention, and in professions whose core mission is as foundational and basic as firefighting.

There is likely a link between culture and organizational excellence, which is as foundational to fire departments as it is to sports organizations, but it is not clear how culture can be measured. The rationale of this research is that it will explore SIT as a tool to measure affiliation and culture as it has been in other disciplines, and as it applies to firefighters. The rationale is also intended to highlight the effects of social identification on culture, and the interaction of leadership with identification. The importance is that it will help to identify social aspects of the profession, which will ultimately inform more effective services and more proactive leadership. If SIT is effective in measuring affiliation specific to a culture, then it is possible to measure the level of identification as it relates to specific elements important to organizations. Considering the apparent lack of such research focus in the past, understanding the in-groups and out-groups of emergency response agencies, and the implication of these identifications, can also provide a platform for future evaluation.

Problem Statement

Perhaps by necessity, firefighting appears to be a decidedly culturally bound profession. Often formal and informal groups impact the organizations and those within them; research

suggests that this impact is often in the form of sense-making, and the creation of organizational culture and a series of sub-cultures which help categorize what it feels like to work within the organization (Watkins, 2013). The problem is that there is little research that focuses on identity frameworks as they apply to fire departments; without the specific focus, the issue continues without attention, and the opportunity to shape future organization based upon these frameworks is missed. Moreover, there is little research that focuses on the impact of these social identities on leadership, group identification, and the impact of these variables on identities in fire departments.

Observation of firefighting and emergency response may likely reveal that there is a cultural component to these professions. However, this does not appear to be clear in foundational documents of the American fire and rescue service. In 1973, a report called "America Burning" was commissioned by Congress to look at the rising statistics related to number of fires, damage caused by fires, and deaths and injuries by fire. The report contained a number of references to technical problems and technical solutions to the fire problem, but there was little to no mention of the importance of the sociocultural and leadership factors that might contribute to these trends, or to possible solutions (The National Commission on Fire Prevention and Control, 1973). A follow-up to this report was completed in 1987 that focused on what had changed since the original report. "America Burning Revisited" began the trend of recognizing the sociocultural aspects of the fire problem as well as the social and political importance of both the organizations and the solutions. But the majority of recommendations in "America Burning Revisited" remained technical in nature – they included the need to address public and political apathy, improve housing safety, develop response personnel with

national standards, create standards for firefighter health and safety and fire department evaluation, create improved fire codes, and better educate the public on the fire issue (United States Fire Administration, 1987).

A well-known fire service adage says “100 years of tradition unimpeded by progress” (Morse, 2012, p. 1). This adage is exemplified in many of the things done in the profession – from how fires are approached, to how responders treat each other, to common sense things like wearing (or not wearing) a seatbelt (Clark, 2015). While the fire service has likely changed in many ways, sadly when it comes to contemporary social topics the adage might still be accurate. Perhaps it is accurate that for decades the emergency response system was focused on technical solutions to technical problems, rather than adaptive solutions to adaptive problems – for example, a larger fire needs more water delivered, or a higher call volume needs another response unit. That is to say, the solutions were being sought from a list of known answers, rather than recognizing that in fact the future of emergency response rested in unknown solutions and adaptation (Heifetz & Linsky, 2002).

In 2004, a group of stakeholders assembled a list of the top initiatives and categories to affect life safety in the fire service in what became known as the “National Summit” (National Fallen Firefighter Foundation, 2014, 2016). This effort led to the 16 Life Safety Initiatives; a project now run by the National Fallen Firefighter Foundation (NFFF). The main program of the NFFF is “Everyone Goes Home”, the goal of which is to “help the U.S. Fire Administration achieve its objective of reducing the number of preventable firefighter deaths” (National Fallen Firefighter Foundation, n.d., p. 1). Indeed, the cause seems a worthy one, but the *16 Life Safety Initiatives* are also indicative of the detrimental problems of the profession. In the report, a

number of the initiatives are procedural in nature: enhanced personal and organizational accountability, an increased focus on risk management, empowering everyone to stop unsafe practices (National Fallen Firefighter Foundation, 2016). The effort also found that others are related to standardization: develop national medical and physical fitness standards, develop national training standards, and standardize response policies; still more are related to organizational support: create a research agenda and data collection forum, grow grant opportunities, and promote public education and codes.

The number one initiative from the report speaks to one of the greatest problems in the profession; that is, "define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability, and personal responsibility" (National Fallen Firefighter Foundation, 2016, p. 1). In this respect, culture is recognized to be those shared values and beliefs of members of an organization such as the fire and rescue services. It appears to remain relevant that cultural change is needed to progress and modernize the fire and emergency medical services. It is suggested that leadership is often at the tip of the spear for change management and organizational maturation (Heifetz & Linsky, 2002).

Purpose Statement

The purpose of this research is to explore the application of SIT as it relates to fire departments in the US. Specifically, the research will focus on the relationships between leadership identification, social identification, and organizational culture by way of groupness. The aims of this study are intended to explore the importance of culture in a setting that does not change frequently, and to examine the theoretic framework of social identity theory that

has been used in similarly strong cultured disciplines. These results are intended to provide a framework with which many of the issues that are challenging fire departments – recruitment and retention, organizational diversity, and change in a complex environment – can be evaluated and measured. To accomplish this purpose, this study will look at variables such as leadership and affiliation in fire departments and learn from other sociocultural niches in which SIT has been more actively established such as athletics and the homeland security sector. The value of the SIT approach is that it examines the impact of an organization on the values, beliefs, and attitudes of the individuals within it; the importance of affiliation can then be used to look at other factors that might be related such as leadership, well-being, retention, and workforce diversity. This initial research on SIT in fire departments is intended to open the door for research on other impacts to the culture of these organizations, and to ultimately influence organizational stability, diversity, recruitment and retention, and overall mission success.

Literature Review

This review of literature will start by exploring occupational identity and then review the meaning and significance of culture, attitudes, and groups to ensure common understanding for foundational purposes. The next section will focus on organizational development and structure generally, and then on fire departments specifically. In doing so, the review will introduce and explore the concept of “tactical athlete”, a relatively new term in sports and wellness (Smith, 2018). The theoretic framework of social identity and identity leadership will be explored with an emphasis on the importance of formal and informal leadership in organizations, including identifying the behavioral theories important to this study and how they relate to groups, organizations, and leadership. After discussing the theoretical

framework, the review will consider the various tools available for measurement and identify the tools that will be used for the present study.

Occupational Identity

The task of fire and Emergency Medical Service (EMS) responder has grown to a point that it is frequently recognized as a profession as much as it is a technical trade (Cox, 2012). That professional identity stems from the concept that there are many complex and intertwined divisions and functions, there is a conceptual framework that bounds the functions, there is a hierarchy of positions which each require training and education, there is a body of technical literature and academic research that is forming, and there is specific accreditation and a broad knowledge base (Barr & Eversole, 2003). Fire departments are naturally culturally strong organizations, and the effect of this strength extends to the people within the organization; one thesis noted that firefighters exhibit this trend because of three reasons that ring true in this research:

1. an individual's personal and social identity is defined by their organizational affiliation;
2. in-group affiliations motivate individuals to adopt the long-standing attitudes and behaviors of the group; and
3. in-group affiliations and, society at-large, reward individuals for maintaining a traditional firefighter personification (Cox, 2012, p. 14).

Despite the growth and obvious inclusion of emergency medical care within the fire persona, there were many fire departments and individuals who were historically not willing to assume the new identity (Coleman & Granito, 1988). But those within organizations are

assuming an identity nonetheless - this reasoning can be referred to as occupational identity (Phelan & Kinsella, 2009). Barr and Eversole (2013) recognized that fire departments are composed of many interrelated groups which often define an organization as thoroughly as rigid hierarchical structures, and that traditional theories fail to recognize the strength of the relationships and effects of these in-group ties. They furthered that leaders, formal and informal, must recognize that response organizations are multi-level social organizations that are composed of individuals tied together by groups, sometimes more than one. The identity of the workforce in any of these organizations will, to some degree, include unions and unionization (Barr & Eversole, 2003). Unionization is a significant factor in firefighting with the majority of career employees being represented by the International Association of Firefighters (IAFF), but the Service Employees International Union and Teamsters as well (Coleman & Granito, 1988).

The job of firefighting has changed significantly over the past few decades – economically, technologically, and socially (International Association of Fire Chiefs, n.d.). While the core mission of fighting fires has seemingly reduced over the years, the overall call volume and diversity has increased greatly and emergency medical services in most places constitute the large majority of calls (Evarts & Stein, 2020). Further, volunteers are asked to do more and over greater areas despite no increases in membership numbers, so the overall effect is less coverage in recent years; this has caused jurisdictions to continue to make the transition from fully volunteer, to combination career and volunteer members, and ultimately to fully career departments (Keisling, 2015). It has apparently yet to be revealed what impact, if any, the

group and individual influenced identification has on organizational performance and effectiveness.

Understanding Organizations

Classic organizational theory states that if we look at the different perspectives of organizations we can learn about their groupings, management, and leadership (Morgan, 1983). There are a number of effective ways to look at organizations, and it is to that exploration that this literature review will now turn. A brief review of organizational theory and structure will lead into a specific exploration of fire departments.

Culture, Attitudes, and Groups

This review has suggested that much like sports organizations, fire departments appear to have strong occupational identification (Barr & Eversole, 2003; Coleman & Granito, 1988; Cox, 2012; Phelan & Kinsella, 2009). Moreover, it has suggested that organizations are the building blocks of society (Haveman & Wetts, 2019b). How organizations influence both within the group and outside the groups was likened to a political process in which power is exchanged like currency (Hawley, 1963; Pfeffer, 1992; Slack & Parent, 2006). This review will now explore how influence is brokered within organizations such as those in sports and emergency response.

Culture

Culture as it relates to an organization and those within it "is concerned with characteristics such as the type of values and beliefs found in an organization and the accepted modes of operation" (Slack & Parent, 2006, p. 274). As such, culture and attitude affect social interactions and identification. If one believes as Coyle (2018) suggests that group culture is a

powerful force, then the study of culture in organizations would seem to be worthy of notice. Culture is an important part of any organization, and now more frequently than in the past, fire department leaders are looking to categorize and explain culture (Halton, 2017). Socially shared norms form the base for culture (Chatman & Cha, 2003; Scott, 1997). Perhaps informal structures and beliefs are more important to forming culture than formal structures and espoused beliefs (Scott, 1997). Fire department culture is defined by those within the organization, and in places where there is strong culture, by the external stakeholders as well (Roden, 2015).

Culture might be considered a learning process, wherein events and activities stimulate cognitive, behavioral, and emotional processes to create a bond; it can manifest as "(a) observable artifacts, (b) values, and (c) basic underlying assumptions" (Schein, 1990, p. 11). Organizations tend to develop their artifacts, values and assumptions based upon cultural beliefs; these items define how members of the organization react and behave, and how interpersonal reactions influence behaviors; it might be inferred from this description that the fire service has a strong culture (Cox, 2012). At times it might be hard to define what makes a culture strong, but it seems clear from the ongoing successes of some that it can be recognized. It has been suggested that the skills that can lead to a successful group culture include the connective bonding of identity and belonging, the creation of trust through vulnerability and shared risk, and how goals and values become shared (Coyle, 2018). More recent descriptions of organizational culture have included the behaviors and attitudes of members as well as shared meanings and values, which brings a more social aspect to the definition (Schein, 2004).

While hard to define, organizational culture is seen as having a large impact on how all agencies develop, form, and thrive (Cox, 2012).

Research has shown a strong link between organizational culture, organizational performance, and leadership (Schein, 2004; Scott, 2014; Scott, 1997). Slack and Parent (2006) noted the difference between thin cultures in which common values are less obvious, and thick or strong cultures in which values are well shared and acted upon. Chatman and Cha (2003) also reported a link between strong culture and organizational excellence. This research found that strong cultures stem from "high levels of agreement among employees about what's valued, and high levels of intensity about these values" (Chatman & Cha, 2003, p. 7). Moreover, a strong culture is difficult to change due to the hard-wired and well-established shared belief structures; leadership and culture are mutually dependent, and mutually influenced (Schein, 2004). With increased organizational diversity in workgroups, subcultures are often present and significant (Doherty & Chelladurai, 1999). Overall, creating and managing culture might be the core of effective group leadership, thus, leadership and cultures are effectively linked (Cox, 2012; Schein, 2004).

Most organizations in fact have multiple cultures within the organization because of differentiation; people in different groups have different attitudes, values, beliefs; as such they have different rites, rituals, traditions, and relics (Slack & Parent, 2006). Gregory (1983, p. 359) contends that "many organizations are most accurately viewed as multicultural," and contain "(s)ubgroups with different occupational, divisional, ethnic, or other cultures." Another view is that organizational culture is a combination of the many subcultures that exist within the organization and contribute towards the whole (Meyerson & Martin, 1987). Regardless of the

definition of culture(s) in an organization, it would seem that the recognized cultures impact social identification and overall impacts. Culture is said to reflect values widely shared by members of an organization which has been brokered by negotiation and relationships, perhaps more significantly than through authority and formal hierarchy. The most beneficial cultures to emergency response and sports organizations are likely developed by transformational leaders with significant group likeness (Scott, 1997).

Groups

Groups help define our social circles, clarify our existence, position our roles in society, and help to organize our work and personal relationships (Cox, 2012). Early studies of group attitudes and persuasion revealed that individuals in groups are influenced by the opinions of those in the group to which they seek or have membership (Sherif, 1937). Certainly, group identification not only defines attitudes and beliefs, but creates a cohesion that is relevant to social dynamics. Schein (1990) identifies tasks facing all groups as they seek to form and identify: developing core missions and goals and gaining consensus from members including the identification of common definitions and language and criteria for authority and power.

Group behaviors are learned, but it is unclear how groups learn (Schein, 1990). Understanding how behaviors and attitudes help form group norms inhibits the ability to understand how leaders emerge and are selected. Schein (1990) hypothesized that as culture is created there is an integration as humans seek consistency and groupness, and a differentiation into subcultures that creates diversity. These processes are happening simultaneously – that is, both the group is forming its cultural norms, and subgroups are forming theirs (Schein, 2004). It leads to the possibility, and in fact probability, that multiple group identifications will occur in a

single individual (Gregory, 1983). In the case of fire departments the merger has caused the conflict of multiple cultures, and the opportunity for complex identification (Cox, 2012).

Group identification to some extent should match the degree to which an individual resembles the identified group characteristics; perhaps the perception is even greater than the actual properties (Hamilton, 2007). This concept has come to be known as groupness in the sport setting; the extent to which a team member perceived the team as a group influences their perception of membership importance (Martin et al., 2017), and ultimately can affect longevity and cohesion (Martin et al., 2017; Spink et al., 2010).

Fire Departments and their Elements

While organization theory at a general scale seems to have value, perhaps fire departments create their own environment and bonds worthy of exploration. To that end, fire departments are complex interactive organizations (Coleman & Granito, 1988; Federal Emergency Management Agency, 2002). This section looks at the history, culture, structure, and identities within these organizations.

Organized fire departments emerged as the destructive power of fire itself met the emergence of communities; the first organized department of record was created by Augustus Caesar in 23 B.C., and the first professional firefighting group was formed in A.D. 6 (Coleman & Granito, 1988). For the most part, firefighting in the new country was done by volunteer fire companies which consisted of social groups which were exclusive and proud, and many still exist (Carter & Rausch, 1989). With the creation of the steam engine in the mid-1800s, cities started to replace large volunteer workforces with smaller paid staff, and larger cities started to replace volunteer fire companies with paid fire departments. As fire departments modernized,

many tasks other than fire protection were added to their plates (National Commission on Fire Prevention and Control, 1973). Coleman and Granito (1988) outlined that activities such as fire prevention and code enforcement, public education and communications, disaster planning and emergency management, data collection and regional coordination, hazardous materials, rescue, and emergency medical services were all added options in fire departments. Necessity further changed the fire service, and the culture of the fire service, including the emergence of medical services as a core function (Federal Emergency Management Agency, 2002).

The significance of rituals, myths, and tradition is significant in emergency response organizations, as it is significant in humanity and traditionally grounded organizations in general (Coleman & Granito, 1988). The design, purpose, and position of fire departments sets them apart from other organizations, which in turn affects culture (Roden, 2015). There is great significance to the social environment of fire departments; culture in this context provides a framework that unifies these organizations, helps to maintain social order, sets standards, gives guidance, and establishes norms (Cox, 2012). “Every organization possesses a culture or ‘character,’ which is developed over a long period of time” (Coleman & Granito, 1988, p. 61). Specifically, leadership can be effective in this context by developing and empowering, valuing diversity, communicating assigned and shared responsibilities, and supporting employees to work through and for change (Barr & Eversole, 2003; Carter & Rausch, 1989).

Employee Attributes and Well Being

Research has focused on many aspects of social identification, performance, diversity, and leadership (Knippenberg & Sleebos, 2006). Job satisfaction, organizational commitment and involvement, and motivation have all been found to stem from team and organizational

identification in sports (Harris & Cameron, 2005; Swanson & Kent, 2015). Improved self-esteem and self-concept are also researched by-products of self-identification (Oja & Bass, 2020). Turnover has also been a focus of social identity theory in recent years (Knippenberg & Sleebos, 2006; Van Dick et al., 2004). In short, individuals who strongly identify with an organization are more likely to have higher job satisfaction, which ultimately explain attrition and turnover intentions of group members (Van Dick et al., 2004). This study furthered that the study or social identity and organizational identification and ascertained specific transformational leadership characteristics as significant in explaining employee satisfaction.

There is another emerging line of study in the general framework of social identity that looks at the effect of balance of individuals and group identification on group members (Kreiner et al., 2006). Sveningsson & Alvesson (2003, p. 1165), for example, indicate that a leader's responsibility is to help balance these multiple identities, and define identity work as "being engaged in forming, repairing, maintaining, strengthening or revising the constructions that are productive of a sense of coherence and distinctiveness." Kreiner et al., (2006) further that isolation and disconnection can result from an overemphasis on personal identity, while depersonalization can result from an overemphasis on social identities; this balance is perhaps even more important in demanding professions which are often in the public eye. Finally, there is an increased definition in disciplines such as sports, that an organization can have an influence on the well-being of members of a community outside of the ingroup by simple effects of social identification; this has been particularly observable in periods of crisis (Inoue et al., 2021).

In recognition of the fact that firefighter physical, mental, and cumulative traumas are substantial issues in both overall response and cost, many departments have moved to evaluate and require fitness training of firefighters on a regular basis (TriData Corporation, 2004). There is a strong realization of the physical demands and need for ongoing physical assessment, but also the recognition that there needs to be a psychological component that is developed and researched (Michaelides, 2008; Sefton & Games, 2017; Storer et al., 2014; Xu et al., 2020). The physical and psychological demands of firefighting are much like they are for professional athletes, which led to the emergence of the term "tactical athletes" (Scofield & Kardouni, 2015; Sefton & Games, 2017; Smith, S, 2018). Tactical athlete is a term that refers to "personnel in law enforcement, military, and rescue professions who require unique physical training strategies aimed at optimizing occupational physical performance" (Ries, 2017, p. 18).

Social Identity Theory

To this point, this literature review has focused on organizational theory and fire departments with the intent of creating shared frameworks and definitions. It will now begin to explore theoretic frameworks that can be used to analyze identification within these organizations and its members. The theory of social identification helps to assess the importance of group attributes and values as it relates to the individual (Tajfel & Turner, 1979; Tajfel, 1982; Turner, 1975). As stated by Hogg and Turner (1985, p. 51), "(t)he social group is a fundamental and universal feature of human social life, and the question of how individuals psychologically become members of social groups is an important one in the study of human behavior."

Social Theories

Social Identity Theory (SIT) and Identity Theory have many similarities, and both deal with self-identification (Jasso, 2002). Only Social Identity Theory looks at the concept of groupness and strength of affiliation (Tajfel & Turner, 1979). The aspect of self-categorization in Social Identity Theory has a few key tenets that make it relevant to this study: the generalized nature of group theory, the look at intergroup conflict and a range of group behaviors, and the fact that it does not intersect interpersonal processes with group formation and identification (Hogg et al., 1995). It is perhaps the most identified of organizations or employment arrangements in which SIT has the most significance in terms of intragroup identity impact (Kreiner et al., 2006). Kreiner et al., (2006) studied identification in priests and noted intense identity demands of the occupation, identity tensions, and the significant work priests had to do to balance social and personal identity influences. Indeed, "(s)ocial group members engage in identity work in order to negotiate and optimize the boundaries between personal and social identity" (Kreiner et al., 2006, p. 1032).

The Social Identity Model of Organizational Leadership (SIMOL) suggests that as members associate more strongly with a group, membership becomes more salient and leadership perceptions and behaviors become more based on previously identified aspects of group identity – prototypicality and group orientation of the leader (Hogg, 2001; Hogg & Knippenberg, 2003; Knippenberg & Hogg, 2003). The identification of followers has been linked to inclusive behavior, shared identities and collective values (Shamir et al., 1993; Knippenberg et al., 2004). In fact, prototypicality might be the most important contribution to leadership

from social identity theory (Ibarra et al., 2014; Knippenberg & Hogg, 2003). Steffens et al., (2014) proposed that leaders will be more effective if they are more prototypical.

Certain aspects of leadership are important to identification and groupness (Martin et al., 2016). The orientation a leader has towards a group is important; examples are how much the leader favors the in-group over the out-group, how fair and balanced the leader is to group members and in intergroup relationships, and how committed the leader is to the group's success (Hogg, 2001). However, as stated by Hogg and Knippenberg (2003, p. 18) "(f)rom our social identity perspective, we would predict that as group membership becomes more salient, ingroup leaders will become increasingly effective relative to outgroup leaders."

SIT has been used in similar disciplines which are worthy of note. For example, the research here has highlighted the framework used in sports (Eklund & Tenenbaum, 2014; Gundlach et al., 2006; Kuo & Hou, 2017; Martin et al., 2016; Martyn et al., 2019; Sanderson, 2013; Smith et al., 2018; Smith & Whiteside, 2019; Whigham, 2014) and homeland security (Baker, 2012; Brannan et al., 2014; Brannan, 2007; Mangum & Block, 2018; Strindberg & Warn, 2011). SIT has been the framework of analysis in some works on law enforcement, for example, Espinosa (2016) looked at social identity in law enforcement managers and reported that it has an impact on their feelings about themselves as professionals, their co-workers, and their significant others. This study also reported the need to further investigate SIT in law enforcement officers specifically and emergency responders in general.

Social Identity Theory has been a subject of rich study in athletics and sport, but only a recent topic in homeland security (Brannan et al., 2014; Brannan, 2007). Although it sounds dismissive, terrorism appears to be a form of social interaction as terrorists are impacted by the

social environment. “Using SIT as a framework, analysts can view terrorist conflict as a product of collective life rather than effects of individual pathology” (Brannan et al., 2014, p. 47). This study furthers that SIT can be used to look at complex relationships between groups and their associated individuals, and analyze how the group has formed, what it might become, and why individuals have affiliated.

A natural evolution of the discussion of social identity in terrorism is to examine identity theology; identity groups have a wide diversity in core beliefs, and identity theology is much the same (Brannan et al., 2014). Much like other disciplines however, communities that study terrorism have disregarded many significant social and cultural differences when comparing groups and subgroups – differences that might clearly lend towards a social identification that would have utility (Brannan, 2007). Like with terrorist groups, if personal bias is stripped from the analysis, social identity can be used to explain group behaviors in religions as well (Brannan et al., 2014). Rites and rituals are processes that enable new members to be brought into the in-group by passing boundaries; these boundaries help to establish the markers between in-groups and out-groups, and help individuals determine to which groups they will have a positive association (Baker, 2012). Also related to the homeland security environment, how people evaluate and stereotype immigrants can be seen as an exercise in social identification, and research on how in-groups and out-groups are formed and defined can help to understand the picture in a less politicized way (Mangum & Block, 2018).

In comparison to homeland security, sports, and even other response disciplines such as law enforcement, there is very little study of SIT in the fire service. Searches on-line or in educational libraries reveal very little on this subject. There is a single study on authentic

leadership, group cohesion, and group identities in fire departments in Spain which noted that authentic leadership and group identification help explain group cohesion in fire departments (Lopez et al., 2015). Cox (2012) presented a thesis that examined social identity as a part of what defines fire service culture and affects change management in the fire service; the premise is that fire department culture vis-à-vis social identity is something leaders in the discipline need to understand to affect change.

The Research Questions

The Social Identity Approach

There are differing frameworks of social identification, although they all recognize similar contexts (Harris & Cameron, 2005; Hogg & Turner, 1985; Jackson & Smith, 1999; Slater et al., 2016; Tajfel, 1982; Tajfel & Turner, 1979). Cameron (2004) identified three factors of the framework for social identity which included in-group ties, in-group affect, and centrality. McNamara (1997) offered a four process view of social identity in an intragroup context: the first is social categorization, the second the formation of social identity awareness, the third social comparison, and the last a search for distinctiveness. A different framework was proposed by Jackson and Smith (1999) which included four parts of the conceptualization: the perception that an out-group is different than an in-group, defined as intergroup context; attraction to the in-group; the term “common fate”, which realizes that the future of the group and the individual are linked; and an aspect of depersonalization in which the individual identifies more with the group than with individual characteristics. Research on these dimensions has proven validity of the model, and proposed research into each of the

components as well as their organizational, individual, and leadership effects (Jackson & Smith, 1999). This prompts the first research question.

RQ_1. What is the level of social identification and its three components in fire departments as compared to similar disciplines using the same twelve question measurement instrument?

Social Identity Theory and the Leadership Theoretic Framework

There is a growing body of research that suggests that the exertion of leadership influence is related to the ability of a leader to modify a self or group concept and culture (Hou et al., 2021; Knippenberg & Hogg, 2003). Much of the social identity approach focuses on the impact of this influence (Steffens et al., 2021). Leaders are likely to contribute significantly to the culture of an organization, and both formal and informal leaders have impact (Martin et al., 2017). Research has shown that formal and informal leadership, and followership, all affect each other (Martin et al., 2017; Pielstick, 2000; Reicher et al., 2005). "(T)he danger is not that the traditional opposition between leaders and followers is valid in theory but rather that-partly through a faulty theoretic analysis-it may become true in practice" (Reicher et al., 2005, p. 565). Furthermore, it has been noted that leaders who self-identify are likely greater in identity from group membership than those who do not (Martin et al., 2017; Rees et al., 2015). The exploration of formally and informally recognized leaders prompts the second research question:

RQ_2. What is the effect of categorization of leadership and gender on social identification in members of fire departments?

Group Aspects of Social Identity

Group-based pride reflects the positive identification a member has of a group and can be fostered by effective leadership identification; group based pride can likewise contribute to social identification and ultimately team performance (Hou et al., 2021). How groups in organizations are formed and defined has been studied for decades within classic organization theory (Aldrich & Pfeffer, 1976; Hawley, 1963; Meyer & Rowan, 1977; Schein, 1990). Organizational culture is often passed within and throughout members through an organizational socialization process; work done by an organization is ultimately accomplished by the encultured group members of an organization as much as it is done by the people brought into the organization (Van Maanen & Schein, 1978). Organizational socialization and culture can be examined in many forms; similar to social identification is the concept of groupness; that is, how much an individual believes a team that they are on represents a formalized group (Martin et al., 2016, 2017). Research on groupness in athletics has shown that it contributes towards indicators important to ongoing success such as retention, adherence, feelings of association, and membership importance (Martin et al., 2017; Spink et al., 2010). The third research question is inspired by the recognition of the concept of groupness:

RQ_3. What is the level of groupness in fire departments as compared to similar disciplines?

Groupness and Leadership Effects

The theory that social identification makes group behavior possible lends itself to leadership research with a focus on being one with the group; leadership is ultimately collective rather individual, and takes place in the context of group membership (Steffens et al., 2014).

Moreover, relative status of an individual within a group might affect group members' perceptions of the individual, thus strengthening the link between leadership and social identity (Martin et al., 2017). Steffens et al. (2014) proposed that leaders will be more effective if they are more prototypical. In fact. prototypicality might be the most important contribution to leadership from social identity theory (Ibarra et al., 2014; Knippenberg & Hogg, 2003). Furthermore, it is suggested that prototypicality is of greater influence in formal versus informal leaders, and more related to leadership outcomes when prototypicality is strong, which suggests social identity based influence (Steffens et al., 2014). The stronger an individual relates to a group and the more salient the social identity, the more prototypicality relates to effectiveness of a leader (Knippenberg & Hogg, 2003). This highlights the importance of studying leadership as it is shaped by social identification and groupness (Steffens et al., 2014). Research question four is prompted by the recognition that groupness appears to be affected by leadership:

***RQ*$_4$**. What is the effect of categorization of leadership and gender on groupness in members of fire departments?

Methodology

Sample

The sample was selected from the overall population of members of all-risk fire departments nationwide based upon available resources. The United States Fire Administration (USFA) estimates that there are approximately 30,000 fire departments in the United States in 2020, consisting of about 1.2 million firefighters (U.S. Fire Administration, 2020). The sample for this study included 397 total participants. Finding a repository of all 1.2 million responders in

the United States is perhaps not reasonable, so convenience sampling was used. Stratified sampling was attempted to reach out to and invite participation from a representative number of each type of responder – career, volunteer, and paid-by-call (career and volunteer), and all gender identifications (Gay et al., 2009).

Research Instrument

The use of human subjects in this study required a review and approval from the University of New Mexico human subjects Institutional Review Board (IRB). As such, the research protocol, survey instrument, informed consent form, and invitation letter were all submitted to and approved by the IRB prior to survey research being completed. This study used an electronically shared survey design with a questionnaire survey used to collect data.

The first section of the questionnaire included an explanation of the study, a subsection for obtaining participants' informed consent, and general instructions for the completion of the questionnaire. The second section was a simple set of demographic questions to identify the characteristics of the sample - this included age, gender, department type (career, volunteer, or combination), responder status (career, volunteer, or other) union membership status, current position, and number of years in emergency response. Questions in this section coincided with categories that have been established and identified within the USFA and National Fire Protection Association reports (Evarts & Stein, 2020; U.S. Fire Administration, 2020). This section included a question validated in previous research in which the participant self identifies as a formal leader, informal leader, or a non-leader (Crozier et al., 2013; Martin et al., 2017).

The third section consisted of a five question tool previously used and validated to measure groupness in sports organizations (Martin et al., 2013; Martin et al., 2017; Spink et al., 2010). The five questions are aligned with five variables hypothesized to compromise groupness (Martin et al., 2017; Spink et al., 2010). The original five variables and questions were as follows (Spink et al., 2010, p. 166):

1) (C)ommon fate… "When something occurs in this structured setting (e.g., somebody needs assistance, facility is closed), is it likely to affect most individuals?"
2) Social structure was assessed by asking "Does this structured exercise setting have norms or roles concerning group behavior (e.g., expected to be there, certain people help with set-up)?"
3) (M)utual benefit… "Is it enjoyable and rewarding to be part of this structured exercise setting?"
4) Group process was assessed by the question "Is there interaction and communication between individuals in this structured exercise setting?"
5) The final variable, self-categorization, was assessed by asking participants "Do you consider the individuals in this structured exercise setting to be a group (i.e., "we") as compared with a collection of individuals?"

These five questions were all measured on a nine-point Likert scale that went from 1 (not at all/not at all a group) to 9 (very much so/very much a group), much like what was used in previous validated work (Martin et al., 2013; Martin et al., 2017; Spink et al., 2010). While the original five questions were designed to apply towards a sports organizational setting, they

were simply modified by removing the word “exercise” where applicable, and have been shown to be valid when doing so (Spink et al., 2010).

Section four consisted of a survey previously used and validated for studies on social identification; this was a twelve question survey previously developed for use in social identification in sports organizations (Bruner et al., 2014; Cameron, 2004; Martin et al., 2017). Previous use of these questions was found to be reliable and valid for mixed gender application and supported three factors of social identity. The first factor in this instrument was centrality, which is how much the participant thinks about being a member of a group and the significance of self-identification. The second factor in this instrument was ingroup affect, or the feeling a person has about a group in which they are a member. The third factor in this instrument was the significance of the bond the participant feels with a group, which is called ingroup ties. Social identification is measured with a twelve-question tool that is balanced between the three categories (four questions referring to each) and investigates the three factors efficiently and with reliability. Social identification was evaluated with the use of “fire department members(s)” as the ingroup description. The questions are as follows (Cameron, 2004, pp 244-245):

In Group Ties

I have a lot in common with other (ingroup members).

I feel strong ties to other (ingroup members).

I find it difficult to form a bond with other (ingroup members).

I don’t feel a sense of being “connected” with other (ingroup members).

Centrality

I often think about the fact that I am a(n) (ingroup member).

Overall, being a(n) (ingroup member) has very little to do with how I feel about myself.

In general, being a(n) (ingroup member) is an important part of my self-image.

The fact that I am a(n) (ingroup member) rarely enters my mind.

Ingroup Affect

In general, I'm glad to be a(n) (ingroup member).

I often regret that I am a(n) (ingroup member).

I don't feel good about being a(n) (ingroup member).

Generally, I feel good when I think about myself as a(n) ingroup member.

While a number of scales exist that can be used to measure social identification, this scale was selected because of its broad applicability to a wide diversity of social groupings (Cameron, 2004). Questions were measured on a Likert Scale for each item from 1 (strongly disagree) to 7 (strongly agree) with a neutral middle value. The three-factor, twelve-question design allowed for the investigation of separate factor comparison, or for a net score derived from all twelve questions. Social identification in total (net score from all twelve questions) was the primary score of measurement and was used for the primary data analysis and relationship and variance analysis with variables from the second section of the questionnaire.

To establish the content validity and construct validity, and reliability, the following measures were taken:

- Included only those questions with previously established validity from existing research.
- The panel of experts was asked to review the questions and evaluate: the extent to which respondents will understand the questions based upon wording, terminology, and clarity; the extent to which the questions will reveal respondents' knowledge and understanding of social identification in the setting of response organizations; and the extent to which the questions are relevant to the study. Content validity was evaluated using Lawshe's Content Validity Ratio, with each item being evaluated as "essential", "useful but not essential", or "not necessary" to the duties of an emergency responder. With five evaluators all of whom deemed the tool and associated questions as "essential", the CVR for all sections was 1.0, indicating content validity for these questions (Ayre & Scally, 2013; Lawshe, 1975).
- Cronbach's Alpha analysis was conducted on the scores received on the scales from Section 3 and Section 4 of the questionnaire to determine internal consistency or reliability. The value for Cronbach's Alpha for these sections of the survey were α = .65 (Section 3) and α = .85 (Section 4), indicating questionable and good reliability, respectively.

Given that the five-question measure of groupness and twelve-question measure of social identification had not previously been used with populations from fire departments, a pilot test was conducted with the adapted instruments on members (n=5) to evaluate

appropriateness of the wording. This pilot revealed no concerns with the wording in the instruments or any of the subscale items from pilot participants.

Procedures

Once the cover letter and survey instrument were approved and modified as appropriate, a letter of intent was delivered by e-mail to members of the sample as described above. This letter included an introduction and description of the study, information about the purpose of the study, and contact information for the researcher. Participants were given a link to an on-line survey with which they could enter and complete the questionnaire. The questionnaire began with a consent form that described the purpose of the study, reviewed the procedures for confidentiality, and required that the potential participant consent to participate. The researcher remained available for questions and answers during the period of the survey, and any participant had the ability to end their participation at any point without consequences to the participant or their organization. Data was collected through use of the on-line survey tool Qualtrics, and data security and confidentiality maintained through this system. These securities included that all respondents' information was to be stored within the data software until it is used by the researcher, transmitted over a secure HTTPS connection from the respondent and to the researcher, and password protected. Only the researcher had access to the respondents' information and data collected once it was transmitted into Qualtrics for collection and analysis.

Results

A total of 397 responses were received through the on-line survey tool and collected in Qualtrics. On Question 1, 11 participants indicated that they were no longer active fire

department members, and the survey was therefore concluded without further collection of data. In addition, two participants indicated that they were currently active members in a fire department but then answered no further questions. From the remaining participants, 86% were male (330), 13% female (48), 1% non-binary/third gender (2), and one participant preferred not to answer the question. Seventy-two percent of the respondents listed their department type as career, 22% as combination, 5% as volunteer, and 1% indicated they worked within multiple department types. Eighty-eight percent of respondents indicated that they were career responders, 8% volunteer, 2% paid-on-call or paid-per-call, and 2% indicated that they were a combination of career, volunteer, and paid-on-call or paid-per-call. One hundred thirty-one (36%) of the respondents stated that they were non-union, thirty-one (8%) were non-union by choice, while two hundred and five (56%) stated they were union members. Thirty percent of respondents indicated that they were Chief Officers, while 31% were company officers and 39% primary first responders. Fifty-eight percent indicated that they were formal leaders, 26% informal leaders, and 16% indicated no leadership status. The mean age of the respondent group was 45.11 years, while the mean years in service 20.58 years. Respondents' demographic data are shown in Table 1.

Groupness

The respondent's groupness score was calculated using the five-question tool that measured the variables of common fate, social structure, mutual benefit, group process, and self-categorization, each measured on a 9-point Likert scale. Since the overall score is calculated using the scores from all five variables combined, only those respondents that answered all five questions in this scale were used for calculating the groupness score, for a total of 351

respondents. The mean scores for the five variables were as follows: common fate, 6.25; social structure, 7.19; mutual benefit, 7.94; group process, 7.72; and, self-categorization, 7.34. From these values, the overall groupness score for the respondents was 7.28. A higher score indicates a higher level of prototypicality. A summary of the groupness scores is shown in Table 2a. Table 2b shows a frequency table for all five variables in the Groupness scale, while Figure 1 shows a graphic representation of the frequency of groupness responses.

Groupness scores are broken down more specifically in Table 3 by gender and by leadership status. Groupness in this table is broken out by the five variables from the comparison study, and the total groupness scores are reported for all gender and leadership status categories.

Social Identification

Table 4a shows a similar summary of social identification scores. The respondents' social identification score was calculated using the twelve-question tool each measured on a 7-point Likert scale. The tool also measured the sub-categories of in-group ties, centrality, and in-group affect, each of which is considered a component of the overall social identification score. Since the overall score is calculated using the scores from all twelve statements combined, only those respondents that answered all twelve questions in this scale were used for calculating the social identification score, for a total of 349 respondents. Questions 3, 4, 6, 8, 10, and 11 were all asked with a negative inflection, as such each was corrected before calculating the total score by subtracting the measured value from 8; in doing so, each question carried an equal and comparable proportion of the sub-category and overall social identification scores. The mean score for the sub-category of in-group ties was 5.29, for centrality the mean score was

4.65, and it was 6.26 for in-group affect. From these sub-categories, the overall social identification score for the respondents was 5.40. Adjustments made in the statistical analysis resulted in the higher the respondent's score, the higher their level of identification. Table 4b shows a frequency table for all three categories that contribute to the social identification scale, while Figure 2 shows a graphic representation of the frequency of social identification responses.

Social Identification scores are broken down more specifically in Table 5 by gender and by leadership status. Social identification in this table is broken out by the three categories from the comparison study, and social identification scores are reported for all gender and leadership status categories.

General Comparisons

Although not the focus of a specific research question in this study, groupness and social identification scores are also comparable across other demographic dimensions. As such, groupness and social identification are listed for the categories of respondent department type, responder type, union status, and current position in Table 6. Of note in the variable of "Department Type", those from volunteer departments had a higher Social Identification score, which was confirmed with a higher Social Identification score in those who indicated they were volunteers. Those who stated that they work within multiple department types had the lowest Social Identification and Groupness scores, which was also confirmed with the lowest scores in the "Respondent Responder Type" for those stating they worked in multiple categories in this variable. Values throughout Table 6 are otherwise relatively consistent.

Research Question 1

What is the level of social identification and its three components in fire departments as compared to similar disciplines using the same twelve question measurement instrument?

There were two studies that formed the basis for the current study which were used for a point of comparison – Cameron (2004) and Martin et. al., (2017). Results of each study are compared in Table 7. The mean scores of Social Identification, in-group ties, centrality, and in-group affect from all three studies can be compared practically simply by looking at the scores in the table. Of note, centrality appears to be less than the other scores on all three categories, with greater standard deviation in all three as well. In Martin et. al., (2017) it was noted that Cronbach's Alpha was lower than the normally recognized value of 0.70, but that analysis was continued using centrality values since removal from analysis proved no significant differences in overall analysis. All three studies also had a similar trend in ranking of categories – with in-group affect (IGA) measured as the highest, in-group ties (IGT) being the second highest category, and centrality being the lowest.

Since the raw scores for each analysis of the comparison studies were not provided for analysis in this study, a one-sample *t*-test was conducted on Social Identification and its three contributing components to determine if the sample differed from the mean discovered and reported by the previous studies. Assumptions for this analysis included that the samples were independent, participants randomly sampled, and values normally distributed. A two-tailed *t*-test was conducted with 347 degrees of freedom (t_{crit} = 1.960). The *t* values were calculated as follows: t_{IGT} = 0.69, -0.49; $t_{Centrality}$ = 0.65, 0.31; t_{IGA} = 2.42, 0.06; t_{SI} = 1.44, -0.03. In all cases except for t_{IGA} in comparison to Martin et. al, $t_{stat} < t_{crit}$ (1.960), which allows us to accept H_0,

that the means are equal. Only one value caused us to reject H_0 - t_{IGA} from Martin et. al. (2017) in relation to the current study, while t_{IGA} from Cameron (2004) was below t_{crit}. The results of this independent *t*-test allow us to infer that conclusions from past studies might be transferable to the results in the current study. Further comparison is not supported by this research.

Research Question 2

What is the effect of categorization of leadership and gender on social identification in members of fire departments?

A factorial analysis of variance (ANOVA) was conducted using gender and leadership status as the independent variables and the overall social identification score as the dependent variable. Neither gender nor leadership status had significant main effects in the analysis and there was no interaction effect seen in the analysis. There was no apparent relationship between gender and leadership status and the outcome of social identification. The source table for the factorial ANOVA is shown in Table 8.

A second factorial ANOVA was conducted using gender and leadership status as the independent variables and the overall social identification score as the dependent variable, but with the third category in gender which included “third gender”, “other” and “prefer not to answer” removed due to the low number of response (*n*=2). Again, neither gender nor leadership status had significant main effects in the analysis and there was no interaction effect seen in the analysis. There was once again no apparent relationship between gender and leadership status and the outcome of social identification. The source table for this factorial

ANOVA is shown in Table 9. Analysis of the remaining social identification categories and groupness will be done using only those who identified as male or female under gender.

The research question also called for a factorial ANOVA on the different categories that contribute to overall social identification in the twelve-question tool that was used. As such, a factorial ANOVA was conducted using gender and leadership status as the independent variables and either in-group ties, centrality, or in-group affect as the dependent variable. Neither gender nor leadership status had significant main effects in all three of the analyses and there was no interaction effect seen in any of the analyses. There was an apparent relationship between gender and the outcome of in-group ties ($F = 6.978$, $p < 0.05$), and an apparent relationship between leadership status and the outcome of centrality ($F = 3.096$, $p < 0.05$). There was no apparent relationship between gender and leadership status and the outcome of in-group affect, although the significance was only slightly above 0.05 for the relationship between gender and in-group affect. This indicates that the between gender mean difference for in-group ties was likely caused by the independent variable of gender, while the leadership status mean differences in centrality influenced by the independent variable of leadership status. The source tables for the three factorial ANOVA are shown in Table 10a, Table 10b, and Table 10c.

Research Question 3

What is the level of groupness in fire departments as compared to similar disciplines?

There was one comparison study that formed the basis for the current research which was used for a point of comparison – Martin et. al., (2017). Results of both studies are compared in Table 11. The mean scores for Groupness in both studies can be compared

practically simply by looking at the scores in the table, with all values and trends appearing similar.

Since the raw scores for comparison studies were not provided for analysis in this study, a one-sample *t*-test was conducted on Groupness to determine if the sample differed from the mean discovered and reported by the previous study. Assumptions for this analysis included that the samples were independent, participants randomly sampled, and values normally distributed. A two-tailed *t*-test was conducted with 346 degrees of freedom ($t_{crit} = 1.960$). The *t* value was calculated as follows: $t_{Groupness} = 0.42$. In this case $t_{Groupness}(0.42) < t_{crit}(1.960)$, which allows us to accept H_o, that the means are equal. The results of this independent *t*-test allow us to infer that conclusions from the past study might be transferable to the results in the current study. Further comparison is not supported by this research.

Research Question 4

What is the effect of categorization of leadership and gender on groupness in members of fire departments?

A factorial ANOVA was conducted using gender and leadership status as the independent variables and the overall groupness score as the dependent variable. Neither gender nor leadership status had significant main effects in the analysis and there was no interaction effect seen in the analysis. There was no apparent relationship between gender and leadership status and the outcome of groupness. The source table for the factorial ANOVA is shown in Table 12.

Discussion

The data obtained in this study revealed important relationships with social identification and groupness within fire departments but failed to show strong reliability within the groupness scale. In other words, the data helped to answer the general question of "what are the relationships between leadership identification, gender, groupness, and social identification in fire departments?" The reliability of the social identification tool suggested it can be used effectively in emergency response organizations (Cronbach's α = .85). These data generally supported the use of the twelve-question social identification scale within fire departments, as compared to the reference studies of the research (Cameron, 2004; Martin et. al., 2017). Moreover, comparison of these data supports the use of the five-question groupness tool in fire departments with caution as it has been in comparison studies (Martin, et. al., 2017). The reliability of the groupness tool was questionable but above a level which would cause it to be rejected (Cronbach's α = .65), but there are trends within these data that are worth exploring. There are also trends and results of interest looking within the data collected using the social identification tool independent of the groupness results.

Social Identification

The data do support the use of the social identification tool and the general comparison of results from previous research. The frequency tables and charts for the three components of social identification – in-group ties, centrality, and in-group affect – show the trend of higher rated response across all categories. Indeed, all score means are above mid-range for each scale, with reported results for the in-group ties (χ = 5.29), centrality (χ = 4.65), in-group affect

(χ = 6.26) and combined score for social identification (χ = 5.40). These values are all comparable to the comparison studies, and almost identical to those from Cameron (2004), which suggests that conclusions from these previous studies may be applicable from these results.

In the review of literature, it was described that Tajfel (1982, p. 25) defined social identity as "that part of the individuals' self-concept which derives from their knowledge of their membership of a social group (or groups) together with the value and emotional significance of that membership." If one agrees with the premise explained in the review of literature that fire departments are in fact a social structure or group, higher values for social identification as reported in this data would suggest that identification with the norms of the organization contribute to the identification of the individuals within the organization. A key outcome of Social Identity Theory explains that with strong identification, members of a group become less concerned with themselves and more concerned with the group. This strong identification might not just contribute towards strong affiliation and teamwork, it might contribute towards job satisfaction, retention, and longevity, as well as to be used for recruitment of new group members. As stated in the review of literature, low turnover perhaps from higher identification leads to more organizational stability; increased stability can help individuals and organizations manage an increasingly complex environment. From the data in the current study, it is notable that the category of social identification with the greatest mean is in-group affect, and that with the lowest mean is centrality. As in-group ties is described as the feeling of belonging to the group and centrality the importance of group identification to the individual, it might be concluded that it is the feeling of connectedness that is the driving

factor of high identification in this population, much like it is with the comparison studies. This conclusion also supports a more specific application towards members of fire departments, as noted by Cox (2012, p. 14):

> 1. an individual's personal and social identity is defined by their organizational affiliation;
>
> 2. in-group affiliations motivate individuals to adopt the long-standing attitudes and behaviors of the group; and
>
> 3. in-group affiliations and, society at-large, reward individuals for maintaining a traditional firefighter personification.

Social Identification – Gender and Leadership

In the review of literature, it is noted that the composition of fire departments is hardly representative of the general population when it comes to gender, with 90% of the overall population of responders being male and 10% being female. There was not significant reporting found in the number or proportion of the population that is non-binary or third gender. The sample proportion for this study was almost perfectly representative of this trend, with 10% of those respondents who completed the full social identification scale reporting as female and 89% male. The score for males in this sample were higher for all three categories that contribute to social identification (In-Group Ties, Centrality, and In-Group Affect) as well as the total Social Identification scale. However, the factorial ANOVA did not indicate significant main effects related to gender difference in Social identification, Centrality, or In-Group Affect. Cameron (2004) would suggest this means there are no significant differences in the "frequency with which membership in (the fire department) 'comes to mind'" (p. 241) or the importance of

“specific emotions (i.e., being glad or regretful) that arise from (fire department) membership” (p. 242) between genders.

The data and analysis do show that there is a significant effect of gender on In-Group Ties. Cameron (2004) describes this as “the extent to which (fire department members) feel ‘stuck to,’ or part of, (the fire department)”, and “the psychological ties that bind the self to the (fire department)” (p. 242). With this in mind, efforts to promote diversification and increase female (and perhaps non-male) participation might include recruitment and retention activities that focus on those things that promote ties to the fire department and psychological belonging. It might be said that it is hard for females to see themselves literally within a fire department when they don’t see themselves figuratively in a fire department. Furthermore, if the premises of diversity and inclusion are important in modern emergency response organizations, as they appear to be described in the review of literature, then specific work towards lowering the significant gender differences might have a positive effect.

Similar conclusions can be drawn regarding the association of leadership status with social identification and its components. Looking at the scores it is notable that in Social Identification and all three of its contributory categories (In-Group Ties, Centrality, and In-Group Affect) there is a repeating general increasing trend from identification as “not a leader”, to an informal leader, and then to formal leaders. In other words, formal leaders have generally higher identification than informal leaders or non-leaders. In the review of literature, it was noted that leaders often influence groups by promoting shared values that transform individual action to group action. What is not clear is if being put in a position of leadership makes one

identify at higher levels, or if greater identification leads to one being placed in a leadership position – either informally or formally.

While these data do show the general trend of increases as described above, the only category in which there is an apparently significant main effect of leadership status on score is in Centrality. In other words, the score difference between formal, informal, and non-leaders appears to be related to the leadership status when it comes to the "frequency with which membership in (the fire department) 'comes to mind'" (p. 241). In the review of literature, it was noted that the stronger the social identification is based upon shared traits, the likelier the leader will be perceived as effective; this might be true in how leaders promote shared values that promote centrality.

Groupness

The groupness comparison was continued even though Cronbach's Alpha (α = .65) did not exhibit strongly substantiated reliability for use of the five-question scale. As such, readers are encouraged to interpret the finding of this research specific to the groupness comparison with caution, although likely having value for research purposes (Cronbach, 1951; Taber, 2018). Despite this finding, analysis of the data was continued using the Groupness tool – simple visual comparison shows that data from this study is similar to that from the comparison study (Martin et. al., 2017). Inferences from this similarity are difficult due to the limited nature of the comparison. Furthermore, neither gender nor leadership status had significant main effects in the analysis and there was no interaction effect seen, concluding that there was no apparent relationship between gender and leadership status and the outcome of Groupness. The suspect reliability and insignificance of comparison against the independent variables of gender and

leadership status do not support the continued use of the five-question Groupness tool without additional development or validation.

Limitations

1. This study was completed using a strategic convenience sampling method, which therefore limits the applicability and generalizability of the results to the population.
2. Definition of formal and informal leader might be subject to interpretation.
3. The population of study was members of fire departments in the United States. While the applicability of this study to other populations might be both obvious and desirable, the application to these populations is limited with the current study.
4. The population of study was members of fire departments in the United States. As such, cross-cultural generalizability, such as assuming similar outcomes would be found in international contexts, should be used sparingly.

Recommendations

The results of the present study show that there is likely to be value in the study of social identification and organizational identification within fire department populations. The study failed to find significant relationships between all of the research variables in both of the tools used; however, it may be that these variables may reveal trends in identification and prototypicality when compared in other geographic regions, with larger samples, or in more specific subsets of the population.

Future research may be needed to confirm the findings of the study since it is the new application of both the Groupness and Social Identity tools in fire department populations. Further, only the use of the Social Identification tool is indicated by the results of this study,

although perhaps the Groupness tool could be used with further development or validation. Future research using the Social Identity tool may include the following designs:

1. Stratified sampling to compare career, combination, and volunteer organizations.
2. Inclusion of a variable based on geographic regions.
3. Application of the research to international populations to encourage the exploration of SIT in diverse emergency response environments.
4. Inclusion of a variable based upon departmental position, to include chief officers, company officers, and technical position such as firefighter, paramedic, rescue technician, and engineer.
5. A more specific assessment of firefighter's social identification scores among and between genders and ethnicities. The results of this study showed some differences in social identification scores based upon gender, but not on ethnicity. However, the response populations of any gender other than male were too small to allow for meaningful analysis. Ethnicity was not a variable of study in this research.
6. A comparison of variables based upon a longitudinal assessment – i.e., following participants through a career to measure changes in social identification.

Finally, an exploration of practical implications of the study is warranted. This study intended to create a base of research and a format with which future research can be applied, but the implications from the research are as of yet highlighted. With this framework, the findings can be used to help leaders in the real world improve their organizations or cultures. Perhaps change will be most likely made when emergency response organizations have

established and agreed upon definitions of success – both internally and externally. This research proposed one measurement tool for doing just that.

Conclusion

Fire departments are described in the review of literature as often focused more on tradition than on progress and change. It might be this similarity alone that predisposes the discipline for significant and substantial social identification, much like in the disciplines of law enforcement, homeland security, and sports. Indeed, there appear to be reasons why social identification is important in fire departments, and why its study might provide value. Firefighters are dealing with an increasingly complex environment, and more is being asked of these individuals and organizations than in the past. Higher job satisfaction and motivation may come from increased social identification and a feeling of belonging; a focus employee wellbeing and affiliation might even help manage personal trauma responses that have been so prevalent in modern responders. The review of literature indicated that belonging promotes health and wellness as well as organizational stability, and both outcomes can have positive end results. Moreover, tactics to promote stronger identification are likely useful in promoting not only retention, but also in recruiting efforts, specifically around diverse and underrepresented groups.

While there are clear similarities between sports organizations and fire departments, application of similar principles and theories between the disciplines is an emerging field. The review of literature described the many ways that SIT has been used to measure culture in sports, and perhaps this research proves the need for similar theories in fire departments. While it seems obvious in sports that the extent to which a team member perceived their group

as a team influenced their overall perception of membership importance, the same can likely be said in fire departments. In a nod to their traditional nature, perhaps the rigid hierarchies of fire departments fail to recognize the importance of social identification to overall success – and to recognize the importance and influence of both formal and informal groups within the organizations. But these organization do appear to be based on strong cultures in which core values are generally well shared, and within which social and organizational identification are thick; this is a good attribute when it is noted that there is a strong link between culture and organizational excellence. As such, creating and managing culture might be a core function of effective leaders in fire departments.

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Tables and Figures

Table 1

Demographic Data

Gender	Age	Years of Service
Male: 330 (86%)	Mean: 45.11	Mean: 20.58
Female: 48 (13%)	SD: 11.31	SD: 11.73
Non-binary/third: 2 (1%)		
Prefer not to answer: 1 (0%)		

Department Type	Responder Type
Combination: 83 (22%)	Volunteer: 30 (8%)
Volunteer: 19 (5%)	Paid-per-call: 7 (2%)
Career: 273 (72%)	Career: 325 (88%)
Career, Combination: 4 (1%)	Career, Paid-per-call: 2 (1%)
Combo, Volunteer: 1 (0%)	Career, Volunteer: 2 (1%)
	Paid-per-call, Vol: 1 (0%)

Current Position	Union Status	Leadership Status
First Responder: 135 (39%)	Union member: 205 (56%)	Formal: 214 (58%)
Company Officer: 110 (31%)	Non-union: 131 (36%)	Informal: 96 (26%)
Chief Officer: 105 (30%)	Non-union by choice: 31 (8%)	None: 58 (16%)

Table 2a

Groupness

Variable	Question	*N*	Mean	SD	Median
Common Fate	When something occurs in the fire department (e.g., somebody needs assistance, facility is closed), is it likely to affect most individuals?	351	6.25	1.71	7
Social Structure	Does the fire department have norms or roles concerning group behavior (e.g., expected to be there, certain people help with set-up)?	351	7.19	1.72	7
Mutual Benefit	Is it enjoyable and rewarding to be part of the fire department?	351	7.94	1.57	9
Group Process	Is there interaction and communication between individuals in the fire department?	351	7.72	1.35	8
Self-Categorization	Do you consider the individuals in the fire department to be a group (i.e., "we") as compared with a collection of individuals?	351	7.34	1.77	8
	Groupness Total	351	7.28	1.05	

Table 2b

Groupness- Response Frequency for all Five Variables

Value	Common Fate	Social Structure	Mutual Benefit	Group Process	Self-Categorization
1	3	4	2	0	3
2	10	5	3	1	9
3	16	5	4	1	5
4	13	7	5	5	8
5	71	38	14	17	22
6	58	37	21	31	38
7	95	90	40	71	64
8	54	69	72	92	89
9	26	96	185	128	112

Table 3

Groupness Variables and Overall - Gender and Leadership Status

Variable	*N*	Common Fate		Social Structure		Mutual Benefit	
Gender		Mean	SD	Mean	SD	Mean	SD
Male	314	6.27	1.71	7.18	1.70	7.97	1.54
Female	35	6.08	1.77	7.23	1.96	7.63	1.80
Other	1	6		6		9	
Prefer not to say	1	8		8		9	

	N	Group Process		Self-Categorization		Total	
Gender		Mean	SD	Mean	SD	Mean	SD
Male	314	7.78	1.28	7.36	1.73	7.31	1.03
Female	35	7.17	1.82	7.06	2.11	7.03	1.24
Other	1	7		8		7.2	
Prefer not to say	1	9		9		8.6	

	N	Common Fate		Social Structure		Mutual Benefit	
Leadership Status		Mean	SD	Mean	SD	Mean	SD
Formal	208	6.29	1.73	7.12	1.65	8	1.50
Informal	92	6.43	1.61	7.33	1.76	7.88	1.66
Not a leader	51	5.76	1.78	7.22	1.92	7.82	1.66

	N	Group Process		Self-Categorization		Total	
Leadership Status		Mean	SD	Mean	SD	Mean	SD
Formal	208	7.71	1.36	7.37	1.69	7.30	1.02
Informal	92	7.71	1.45	7.41	1.80	7.35	1.04
Not a leader	51	7.76	1.12	7.08	2.04	7.13	1.17

Table 4a

Social Identification

Category		Statement	*N*	Mean	Std. Dev.	Median
In-Group Ties		I have a lot in common with other fire department members.				
		I feel strong ties to other fire department members.				
	*	I find it difficult to form a bond with other fire department members.				
	*	I don't feel a sense of being "connected" with other fire department members.				
		In-Group Ties Subtotal	349	5.29	1.16	6
Centrality		I often think about the fact that I am a fire department member.				
	*	Overall, being a fire department member has very little to do with how I feel about myself.				
		In general, being a fire department member is an important part of my self image.				
	*	The fact that I am a fire department member rarely enters my mind.				
		Centrality Subtotal	349	4.65	1.38	5
In-Group Affect		In general, I'm glad to be a fire department member.				
	*	I often regret that I am a fire department member.				
	*	I don't feel good about being a fire department member.				
		Generally, I feel good when I think about myself as a fire department member.				
		In-Group Affect Subtotal	349	6.26	0.86	7
		Social Identification	349	5.40	0.87	
	*	Questions 3, 5, 6, 8, 10, & 11 scores are corrected values.				

Table 4b

Social Identification - Response Frequency for all Three Categories

Category	1	2	3	4	5	6	7
In-Group Ties	21	62	104	151	278	509	259
Centrality	55	151	120	286	250	335	191
In-Group Affect	8	13	27	66	89	433	751

Table 5

Social Identification Categories and Overall - Gender and Leadership Status

Variable	*N*	In-Group Ties		Centrality		In-Group Affect		Total	
Gender		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Male	312	5.34	1.13	4.66	1.36	6.30	0.85	5.43	0.84
Female	35	4.72	1.34	4.59	1.23	5.94	0.99	5.08	1.34
Other	1	6		5.5		6.75		6.08	
Prefer not to say	1	6.25		2.5		6		4.92	
	N	In-Group Ties		Centrality		In-Group Affect		Total	
Leadership Status		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Formal	207	5.37	1.11	4.88	1.33	6.33	0.77	5.53	0.78
Informal	91	5.29	1.22	4.31	1.30	6.21	0.95	5.27	0.92
Not a leader	51	4.93	1.24	4.33	1.57	6.08	1.03	5.11	1.03

Table 6

Groupness and Social Identification Compared in Various Demographic Categories

Category	Social Identification			Groupness		
	N	Mean	St. Dev.	*N*	Mean	St. Dev.
Department Type						
Career	248	5.31	0.90	243	7.28	1.07
Combination	78	5.61	0.71	78	7.34	1.04
Volunteer	16	6.01	0.73	16	7.16	1.11
Multiple	5	5.28	0.32	5	6.19	2.52
Respondent Responder Type						
Career	308	5.37	0.87	306	7.31	1.08
Paid-per-call	74	5.35	0.45	76	6.86	0.53
Volunteer	25	5.89	0.74	25	7.29	0.88
Multiple	5	5.43	0.73	5	6.80	0.79
Respondent Union Status						
Union	196	5.30	0.91	192	7.27	1.10
Non-Union	121	5.59	0.78	122	7.42	0.95
Non-Union by choice	27	5.36	0.81	27	6.85	1.11
Respondent Current Position						
Primary First Responder	124	5.22	0.97	124	7.37	1.02
Company Officer	105	5.40	0.83	102	7.05	1.19
Chief Officer	102	5.66	0.70	102	7.45	0.87

Table 7

Social Identification and its Three Components in Comparison to Past Studies

	Martin et. al. (2017)			Cameron (2004)		Current Study		
Category	μ	SD	α	μ	SD	χ	SD	α
In-Group Ties	4.93	0.90	0.74	5.53	1.04	5.29	1.16	0.83
Centrality	4.21	1.06	0.54	4.45	1.15	4.65	1.38	0.85
In-Group Affect	5.36	0.70	0.70	6.24	0.88	6.26	0.86	0.81
SI (Total)	4.83			5.41	0.83	5.40	0.87	0.85

Table 8

Source Table for Factorial ANOVA - Dependent Variable: Social Identification

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	12.250 (a)	7	1.750	2.390	.021
Intercept	565.262	1	565.262	771.976	<.001
Gender	1.982	2	.991	1.353	.260
Leadership Status	1.301	2	.651	.889	.412
Gender*Leadership Status	1.206	3	.402	.549	.649
Error	249.690	341	.732		
Total	10436.200	349			
Corrected Total	261.239	346			

a. *R* Squared = .047 (Adjusted *R* Squared = .027)

Table 9

Source Table for Factorial ANOVA - Dependent Variable: Social Identification M/F

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	11.549 (a)	5	2.31	3.154	.008
Intercept	3208.56	1	3208.56	4381.912	<.001
Gender	1.955	1	1.955	2.67	.103
Leadership Status	3.625	2	1.813	2.476	.086
Gender*Leadership Status	.2	2	.1	.136	.873
Error	249.69	341	.732		
Total	10375.019	347			
Corrected Total	261.239	346			

a. *R* Squared = .044 (Adjusted *R* Squared = -.026)

Table 10a

Source Table for Factorial ANOVA - Dependent Variable: In-Group Ties

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	19.119 (a)	5	3.824	2.891	.014
Intercept	2942.709	1	2942.709	2224.598	<.001
Gender	9.230	1	9.230	6.978	.009
Leadership Status	3.675	2	1.838	1.389	.251
Gender*Leadership Status	2.639	2	1.320	.998	.370
Error	451.076	341	1.323		
Total	10148.436	347			
Corrected Total	470.196	346			

a. *R* Squared = .041 (Adjusted *R* Squared = .027)

Table 10b

Source Table for Factorial ANOVA - Dependent Variable: Centrality

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	29.375 (a)	5	5.875	3.184	.045
Intercept	2448.837	1	2448.837	1327.121	<.001
Gender	.237	1	.237	.129	.720
Leadership Status	11.427	2	5.713	3.096	.046
Gender*Leadership Status	.455	2	.228	.123	.884
Error	629.222	341	1.845		
Total	8179.750	347			
Corrected Total	658.597	346			

a. *R* Squared = .045 (Adjusted *R* Squared = .031)

Table 10c

Source Table for Factorial ANOVA - Dependent Variable: In-Group Affect

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	6.225 (a)	5	1.245	1.674	.140
Intercept	4382.375	1	4382.375	5890.799	<.001
Gender	2.705	1	2.705	3.636	.057
Leadership Status	.193	2	.097	.130	.878
Gender*Leadership Status	.411	2	.206	.277	.759
Error	253.682	341	.744		
Total	13855.250	347			
Corrected Total	259.907	346			

a. *R* Squared = .024 (Adjusted *R* Squared = .010)

Table 11

Groupness in Comparison to a Past Study

	Martin et. al. (2017)			Current Study		
Category	μ	SD	α	χ	SD	α
Groupness	7.44	1.25	0.70	7.28	1.05	0.65

Table 12

Source Table for Factorial ANOVA - Dependent Variable: Groupness

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.
Corrected Model	6.184 (a)	5	1.237	1.120	.349
Intercept	6067.221	1	6067.221	5493.439	<.001
Gender	.070	2	.035	.032	.969
Leadership Status	1.732	1	1.732	1.568	.211
Gender*Leadership Status	2.547	2	1.274	1.153	.317
Error	378.826	343	1.104		
Total	18905.920	349			
Corrected Total	385.010	348			

a. *R* Squared = .016 (Adjusted *R* Squared = .002)

Figure 1

Groupness – Response Frequencies

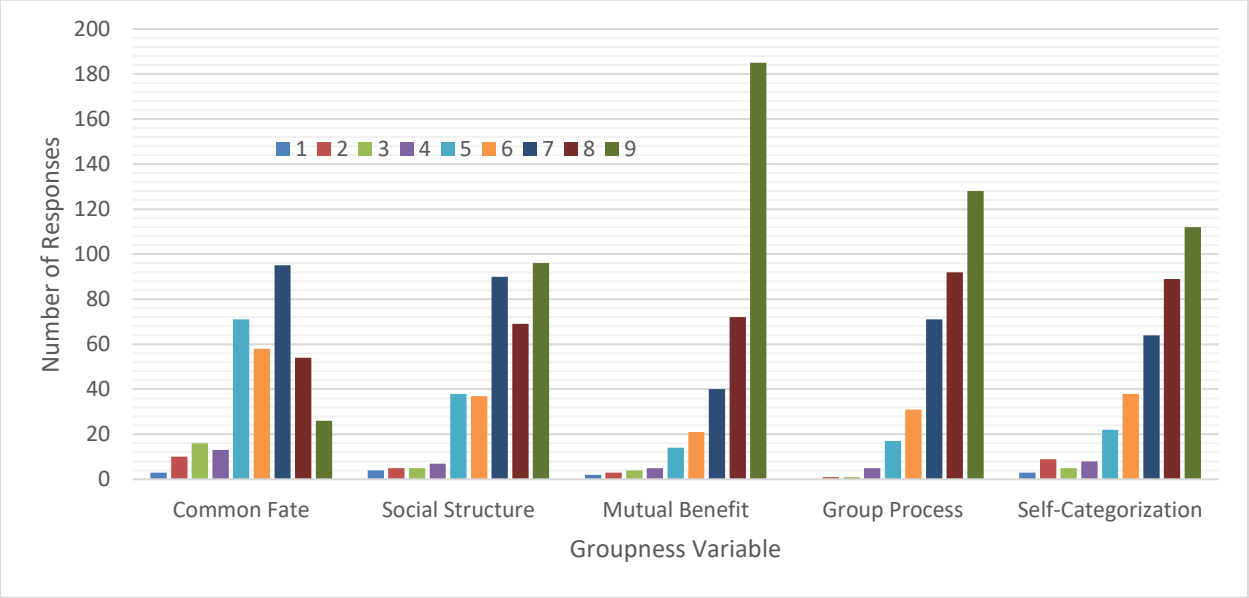
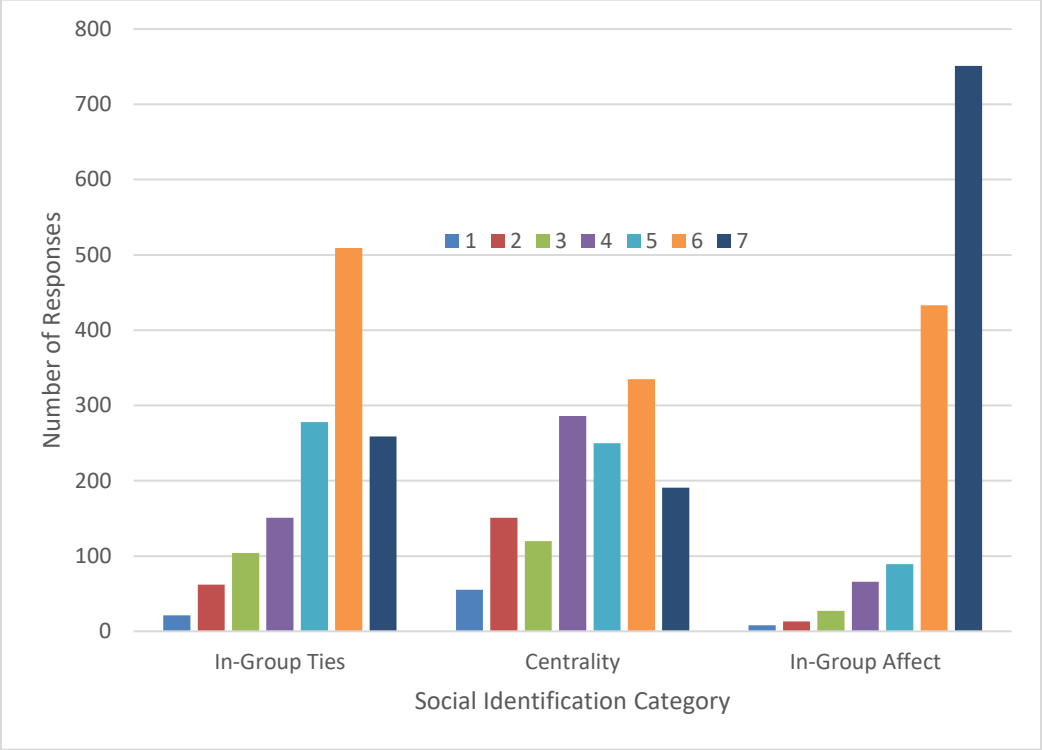


Figure 2

Social Identification – Response Frequencies



Author Biography

Erik Litzenberg is the owner and lead consultant for Liderazgo Consulting, which focuses on government, leadership, and team building, and the Senior Wildland Fire Advisor for the International Association of Fire Chiefs (IAFC). Erik served the majority of his career in the City of Santa Fe Fire Department, completing his time as Fire Chief and City Manager before returning to the Santa Fe County Fire Department where his career began. Through 25 years of service, he has also worked for New Mexico State Forestry and as part of multiple Incident Management Teams, and for many years owned Santa Fe Wildfire, which provided resources for large scale incident management and response. Erik holds a MPA from the University of New Mexico (UNM), a MS in security studies from the Naval Postgraduate School, and a PhD in sports administration from UNM. Litzenberg is the past Chair of the IAFC Wildland Fire Policy Committee, a past principal member of the Wildland Fire Leadership Council, and a member of the National Wildfire Coordinating Group Executive Board. He and his wife and kids live in Santa Fe, NM.